THE INSTITUTION
OF ELECTRICAL
ENGINEERS

IEE Proceedings

Vol. 139, 1992

Published by
The IEE, Savoy Place, London WC2R 0BL, United Kingdom
Publishing Department: Michael Faraday House, Six Hills Way, Stevenage, Herts. SG1 2AY, United Kingdom

IEE Proceedings

The Institution of Electrical Engineers, Savoy Place, London WC2R 0BL, United Kingdom
Publishing Department: Michael Faraday House, Six Hills Way, Stevenage, Herts. SG1 2AY, United Kingdom

Volume 139 1992

The *IEE Proceedings* is published in ten Parts, as follows:

Part A: Science, Measurement and Technology

Part B: Electric Power Applications

Part C: Generation, Transmission and Distribution

Part D: Control Theory and Applications

Part E: Computers and Digital Techniques

Part F: Radar and Signal Processing

Part G: Circuits, Devices and Systems

Part H: Microwaves, Antennas and Propagation

Part I: Communications, Speech and Vision

Part J: Optoelectronics

Six issues of each Part are published during the year.

This publication is copyright under the Berne Convention and the International Copyright Convention. All rights reserved. Apart from any copying under the UK Copyright, Designs and Patents Act 1988, Part 1, Section 38, whereby a single copy of this article may be supplied, under certain conditions, for the purposes of research or private study, by a library of a class prescribed by The Copyright (Librarians and Archivists) (Copying of Copyright Material) Regulations 1989: SI 1989/1212, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior permission of the copyright owners. Permission is, however, not required to copy abstracts of papers or articles on condition that a full reference to the source is shown.

Single copies may be made for the purpose of research or private study.

Authorisation to photocopy items for internal or personal use, or for the internal or personal use of specific clients, is granted by the Institution of Electrical Engineers for libraries and other users registered with the Copyright Clearance Center Transactional Reporting Service, provided that the base fee of $3.00 per copy is paid directly to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA. 0143–702X/92 $3.00 + 0.00. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.

Multiple copying of the content of this publication without permission is always illegal.

Photocopies of individual papers published in the *IEE Proceedings* can be supplied from the IEE Library at 10p per page plus a handling charge. The handling charge is waived if reprints are collected from Savoy Place by purchasers.

The telephone number of the IEE London office is 071 240 1871; telex: 261176 IEELDN G; facsimile: 071 240 77 35.

The IEE is not as a body responsible for the opinions expressed by individual authors.
The IEE is a member of the Association of Learned & Professional Society Publishers.

© 1992: The Institution of Electrical Engineers

Secretary of the IEE: J.C. Williams, PhD, FEng, FIEE
Managing Editor: Gill Wheeler
Graphics Manager: Maurice Partridge

Typeset by: Santype International Limited, Salisbury, Wiltshire, United Kingdom
Printed by: Unwin Brothers Limited, Old Woking, Surrey, United Kingdom
and Black Bear Press, Cambridge, United Kingdom

Index

IEE Proceedings

Vol. 139, 1992

ABBREVIATIONS

- p paper, address or lecture
- d discussion on a paper
- a abstract of paper or address
- e errata
- s synopsis of a paper published in full in another Part of the IEE Proceedings

Author index

A

Aarnio, J., Heimala, P., and Stuns, I. Wide passband wavelength multi/demultiplexer at 1.3/1.55 μm based on etched Fresnel mirror **J** p228
Abbati, M., Galati, G., and Perna, S. see Galati, G.
Abbod, M., Linkens, D.A., and Mahfouf, M. see Linkens, D.A.
Aborhey, S. Binary decision based representation implementation of sequential systems **E** p450
Aboudou, A., Vilcot, J.P., Danneville, F., Decoster, D., Delhaye, E., Boissenot, P., Varin, C., Deschamps, F., and Lecuru, I. GaAlAs/GaAs planar photoconductors and MSM photodetectors monolithically integrated with HIGFETs: application for optical clock distribution **J** p83
Acarnley, P.P., and Chai, H. see Chai, H.
Acha, V., and Carrasco, R.A. Maximum-likelihood synchronisation algorithms for Q^2PSK **I** p597
Achuthan, N.R., Chakravarthy, S.K., and Nayar, C.V. see Chakravarthy, S.K.
Ackermann, B., Janssen, J.H.H., Sottek, R., and van Steen, R.I. New technique for reducing cogging torque in a class of brushless DC motors **B** p315
Acosta, L., Moreno, L., and Sánchez, J.L. see Moreno, L.
Adams, M.J., Mudhar, P.S., Mace, D.A.H., Singh, J., and Fisher, M.A. see Mudhar, P.S.
Adams, R.G., Steven, G.B., Findlay, P.A., and Trainis, S.A. see Steven, G.B.
Adler, C.L., Lawandy, N.M., and Driscoll, T.J. see Lawandy, N.M.
Aghvami, A.H., and Fines, P. see Fines, P.
Åhl, K.-A., and Zander, J. see Zander, J.
Ahluwalia, D.S., and Billinton, R. see Billinton, R.
Ahmad, A., Johannet, P., and Auriol, Ph. Efficient inverse Laplace transform algorithm for transient overvoltage calculation **C** p117
Ahmad, R., and Halsall, F. Performance analysis of bridged LANs **E** p64
Ahmadi, M., Gargour, C.S., and Ramachandran, V. see Gargour, C.S.
Ahmadi, M., Mazinani, A., Shridhar, M., and Ramachandran, V. Simple methods for the design of 2D recursive digital filters with noncircular cutoff boundary **G** p427
Ainscough, J., Southall, D.M., Oakey, S., and Goodwin, A. Behavioural synthesis support system for undergraduate teaching **G** p149
Akbaba, M., and Fakhro, S.Q. New model for single-unit representation of induction motor loads, including skin effect, for power system transient stability studies **B** p521
Akl, S.G., Orton, G.A., and Peppard, L.E. see Orton, G.A.
Akpınar, E., Ermiş, M., Ertan, H.B., and Ülgüt, F. see Ermiş, M.
Al Rashed, S.A., Barakat, E.H., and Al-Qassim, J.M. see Barakat, E.H.
Al-Din, M.S.N., Binns, K.J., and Lisboa, P.J.G. see Binns, K.J.
Al-Ghamdi, F., and El-Hennawy, A. see El-Hennawy, A.
Al-Khalili, A.J., Esonu, M.O., Hariri, S., and Al-Khalili, D. see Esonu, M.O.
Al-Khalili, D., Esonu, M.O., Al-Khalili, A.J., and Hariri, S. see Esonu, M.O.
Al-Orainy, A.A. Bit error rate performance of FSK-distribution systems with SL preamplifiers **J** p361
Al-Qassim, J.M., Barakat, E.H., and Al Rashed, S.A. see Barakat, E.H.
Al-Qutayri, M.A., and Shepherd, P.R. Go/no-go testing of analogue macros **G** p534
Aldeen, M. Class of stabilising decentralised controllers for interconnected dynamical systems **D** p125
Alder, M.D., Haig, T.D., and Attikiouzel, Y. see Haig, T.D.
Alder, M.D., Togneri, R., and Attikiouzel, Y. see Togneri, R.
Alford, N.NcN., Lancaster, M.J., Maclean, T.S.M., Wu, Z., Porch, A., and Woodall, P. see Lancaster, M.J.
Ali, S.M., Gu, Q., and Sheen, D.M. see Gu, Q.
Allan, J., Brown, J.C., and Mellitt, B. see Brown, J.C.
Allan, R.N., and Ubeda, J.R. see Ubeda, J.R.
Allen, J.E., and Uehara, M. see Uehara, M.
Allen, N.L., Boutlendj, M., Hughes, R.C., Lightfoot, H.A., and Neville, R.B. Analysis and comparison of rod–plane and rod–rod gaps as direct voltage measurement devices **A** p279
Allende, M.A., Bracho, S., Villar, E., Martínez, M., and Sánchez, P. see Bracho, S.
Allovon, M., and Quillec, M. Interest in AlGaInAs on InP for optoelectronic applications **J** p148
Almaini, A.E.A., Miller, J.F., and Xu, L. Automated synthesis of digital multiplexer networks **E** p329
Alolah, A.I. Errata **C** p80
Alolah, A.I. Steady-state operating limits of three phase self-excited reluctance generator **C** p261
Alparone, L., Mongatti, G., Benelli, G., Baronti, S., Lotti, F., and Casini, A. see Mongatti, G.
Aluffi Pentini, F., Farina, A., and Zirilli, F. Radar detection of targets located in a coherent K distributed clutter background **F** p239
Amarasinghe, S.K., and Green, D.H. see Green, D.H.
Amato, G., Benedetto, G., Boarino, L., Maringelli, M., and Spagnolo, R. Photoacoustic and photothermal deflection spectroscopy of semiconductors **A** p161
Amer, F.Z., and Salama, A.E. see Salama, A.E.
Amin, A.A.M. Design, selection and implementation of flash erase EEPROM memory cells **G** p370
Amini, Z., Lin, J., and Roberts, P.D. Single iterative algorithm with global feedback for integrated system optimisation and parameter estimation of large scale industrial processes: optimality, convergence and simulation **D** p447
Ancell, G.B., and Pahalawaththa, N.C. Effects of frequency dependence and line parameters on single ended travelling wave based fault location schemes **C** p332
Anderson, A.P., Lord, J.A., and Cook, G.G. see Lord, J.A.
Anderson, A.P., and Aspden, P.L. see Aspden, P.L.
Anderson, S.J. Adaptive remote sensing with HF skywave radar **F** p182
Ando, M., Takahashi, M., Takada, J., and Goto, N. see Takahashi, M.
Andrieux, C., Roboam, X., De Fornel, B., and Hapiot, J.C. see Roboam, X.
Anglada, R., Rubio, A., and Pons, J. see Rubio, A.
Antar, Y.M.M., Bhattacharyya, A.K., and Ittipiboon, A. see Bhattacharyya, A.K.
Aravena, J.L., and Porter, W.A. Highly parallel representations for linear maps **E** p173
Arches, J.P., Metz, M., Roux, J., Ben Doua, S., and Foch, H. see Metz, M.
Arechabala, J., Boemo, E.I., Meneses, J., Moreno, F., and Lopez Barrio, C. Full systolic binary multiplier **G** p188
Arnold, C.P., Arrillaga, J., Sankar, S., and Watson, N.R. see Arrillaga, J.
Arora, R.K., and Lu, Z. Graphical depiction of the electromagnetic fields of Hermite–Gaussian modes **H** p369
Arrillaga, J., Sankar, S., Arnold, C.P., and Watson, N.R. Characteristics of unit-connected HVDC generator–convertors operating at variable speeds **C** p295
Arrillaga, J., and Medina, A. see Medina, A.
Arrillaga, J., and Villablanca, M.E. see Villablanca, M.E.
Arruti, A., and Flórez, J. Multivariable adaptive pole-assignment controller with saturation constraints **D** p13
Asbury, A.J., Mahfouf, M., Linkens, D.A., Gray, W.M., and Peacock, J.E. see Mahfouf, M.
Aspden, P.L., and Anderson, A.P. Identification of passive intermodulation product generation on microwave reflecting surfaces **H** p337
Attaianese, C., Pagano, E., and Scarano, M. Numerical feeding algorithms for asynchronous motors with impressed armature current **B** p44
Attia, M.S., Hassan, M.F., and Sultan, M.A. see Hassan, M.F.
Attikiouzel, Y., Haig, T.D., and Alder, M.D. see Haig, T.D.
Attikiouzel, Y., Togneri, R., and Alder, M.D. see Togneri, R.
Aubert, B., Chiang, H.-D., Thorp, J.S., Wang, J.-C., and Lu, J. see Chiang, H.-D.
Auchterlonie, L.J., Fletcher, P.N., Hardaker, P.J., and Holt, A.R. see Fletcher, P.N.
Auckland, D.W., Cooper, J.M., and Varlow, B.R. Factors affecting electrical tree testing **A** p9
Auckland, D.W., Kabir, S.M.F., and Varlow, B.R. Effect of barriers on the growth of trees in solid insulation **A** p14
Auriol, Ph., Ahmad, A., and Johannet, P. see Ahmad, A.
Avedillo, M.J., Quintana, J.M., and Huertas, J.L. Efficient state reduction methods for PLA-based sequential circuits **E** p491

B

Baba, E., and Yokozuka, T. see Yokozuka, T.
Babić, B.S., Bjelogrlić, M.R., Čalović, M.S., and Ristanović, P.M. see Bjelogrlić, M.R.
Baden Fuller, A.J., Ridler, N.M., Medley, J.C., and Runham, M. see Ridler, N.M.
Baets, R., Willems, J., David, K., and Morthier, G. see Willems, J.
Balabhaskar, G., Ko, C.C., and Chin, F. see Ko, C.C.
Balachandran, K., and Murugesan, K. Note on single-term Walsh series method for singular systems **D** p347
Balakrishnan, W., and Burgess, N. Very-high-speed VLSI 2s-complement multiplier using signed binary digits **E** p29
Balasubramanian, R., Lakshmi, S.R., Tripathy, S.C., and Rao, K.S.P. see Lakshmi, S.R.
Bangding, Tau, Jian, Huang, Zejia, Jiang, and Jihui, Yu see Jian, Huang
Bannister, D.J., and Perkins, M. Traceability for on-wafer s-parameter measurements **A** p232
Bapi Raju, V., Nanda, J., Bijwe, P.R., and Henry, J. see Nanda, J.
Barakat, E.H., Al-Qassim, J.M., and Al Rashed, S.A. New model for peak demand forecasting applied to highly complex load characteristics of a fast developing area **C** p136
Barbarossa, S. Detection and imaging of moving objects with synthetic aperture radar. Part 1: Optimal detection and parameter estimation theory **F** p79
Barbarossa, S., and Farina, A. Detection and imaging of moving objects with synthetic aperture radar. Part 2: Joint time–frequency analysis by Wigner–Ville distribution **F** p89
Barber, M.I., and Watson, D.B. see Watson, D.B.
Baronti, S., Mongatti, G., Alparone, L., Benelli, G., Lotti, F., and Casini, A. see Mongatti, G.
Basu, B.N., Sinha, A.K., Verma, R., Gupta, R.K., Kumar, L., Joshi, S.N., and Jain, P.K. see Sinha, A.K.
Batchman, T.E., Sluss Jr, J.J., and Tayag, T.J. see Sluss Jr, J.J.
Bateman, A., and Chan, K.Y. see Chan, K.Y.
Bates, R.J.S., and Walker, S.D. Optical networking and signal-processing applications of 790 nm self-pulsating laser diodes **J** p263
Battelini, J., and Razavi, H.M. see Razavi, H.M.
Baudrand, H., Couffignal, P., and Obregon, J. see Couffignal, P.
Beck, M.S., Dickin, F.J., Hoyle, B.S., Hunt, A, Huang, S.M., Ilyas, O., Lenn, C., Waterfall, R.C., Williams, R.A., and Xie, C.G. see Dickin, F.J.
Beck, M.S., Huang, S.M., Xie, C.G., Thorn, R., and Snowden, D. see Huang, S.M.
Beck, M.S., Xie, C.G., Huang, S.M., Hoyle, B.S., Thorn, R., Lenn, C., and Snowden, D. see Xie, C.G.
Bekaert, P., Cornick, K.J., and Guardado, J.L. see Cornick, K.J.
Beker, B., and Ho, T.Q. see Ho, T.Q.
Belkadi, M., and Mouftah, H.T. Modelling and test generation for MOS transmission gate stuck-open faults **G** p17
Ben Doua, S., Metz, M., Roux, J., Arches, J.P., and Foch, H. see Metz, M.
Benedetto, G., Amato, G., Boarino, L., Maringelli, M., and Spagnolo, R. see Amato, G.
Benedetto, S., Biglieri, E., Luvison, A., and Zingarelli, V. Moment-based performance evaluation of digital transmission systems **I** p258
Benelli, G., Mongatti, G., Alparone, L., Baronti, S., Lotti, F., and Casini A. see Mongatti, G.
Benjamin, R., and Seeds, A.J. Optical beam forming techniques for phased array antennas **H** p526
Benmahammed, K. On evaluation of the product $H(z_1, z_2)H(z_1^{-1}, z_2^{-1})$ **G** p413
Bennett, J.A., and Dyson, P.L. see Dyson, P.L.
Bennett, J.C., Smith, F.C., and Chambers, B. see Smith, F.C.
Benson, F.A., Cudd, P.A., and Tealby, J.M. Leakage from coaxial cables **A** p285
Benson, T.M., Bozeat, R.J., and Kendall, P.C. Rigorous effective index method for semiconductor rib waveguides **J** p67
Benson, T.M., Kendall, P.C., Matin, M.A., and Stern, M.S. Polarisation correction applied to

scalar analysis of semiconductor rib waveguides **J** p39
Benyon-Tinker, G., Cheung, P.Y.K., Ferrari, A., and de Wilde, P. see Cheung, P.Y.K.
Berbiche, M., Garcia, G., and Bernussou, J. see Garcia, G.
Berceli, T. Optical-microwave phase detection **J** p296
Bermudez, J.C.M., Schneider, M.C., and Montoro, C.G. Compatibility of switched capacitor filters with VLSI processes **G** p413
Bernussou, J., Garcia, G., and Berbiche, M. see Garcia, G.
Besslich, Ph.W., and Riege, M.W. see Riege, M.W.
Betz, R.E. Theoretical aspects of control of synchronous reluctance machines **B** p355
Bhargava, V.K., and Hasan, M.A. see Hasan, M.A.
Bhattacharya, P.K., Savio, A.D., Kousik, G.S., and Nandakumar, R.P. see Savio, A.D.
Bhattacharyya, A.K., Antar, Y.M.M., and Ittipiboon, A. Full wave analysis for the equivalent circuit of an inclined slot on a microstrip ground plane **H** p245
Bhattacharyya, A.K., Antar, Y.M.M., and Ittipiboon, A. Spectral domain analysis of aperture-coupled microstrip patch antennas **H** p459
Bhattacharyya, B.B., Raut, R., and Faruque, S.M. see Raut, R.
Bi, G., Coakley, F.P., and Evans, B.G. Rational sampling rate conversion structures with minimum delay requirements **E** p477
Bi, G., and Jones, E.V. High-performance bit-serial adders and multipliers **G** p109
Biglieri, E., Benedetto, S., Luvison, A., and Zingarelli, V. see Benedetto, S.
Bijwe, P.R., Nanda, J., Henry, J., and Bapi Raju, V. see Nanda, J.
Billinton, R., and Ahluwalia, D.S. Incorporation of a DC link in a composite system adequacy assessment — DC system modelling **C** p211
Billinton, R., and Ahluwalia, D.S. Incorporation of a DC link in a composite system adequacy assessment — composite system analysis **C** p221
Billinton, R., and Chowdhury, A.A. Incorporation of wind energy conversion systems in conventional generating capacity adequacy assessment **C** p47
Billinton, R., and Goel, L. Overall adequacy assessment of an electric power system **C** p57
Bilski, T. Embedding graphs in books: a survey **E** p134
Binns, K.J., Al-Din, M.S.N., and Lisboa, P.J.G. Use of canned rotors in high-field permanent magnet machines **B** p471
Binns, K.J., Low, T.S., Lim, K.W., and Rahman, M.F. see Low, T.S.
Birkmayer, W.S., and Wale, M.J. Proof-of-concept model of a coherent optical beam-forming network **J** p301
Biswas, A., Thorburn, M.A., and Tripathi, V.K. see Thorburn, M.A.
Biswas, J.R., Munshi, S., and Roy, C.K. see Munshi, S.
Bjelogrlić, M.R., Ćalović, M.S., Ristanović, P.M., and Babić, B.S. System voltage and reactive power control: A computer-assisted manual/automatic concept **C** p491
Blair, G.M. Skew-free clock distribution for standard-cell VLSI designs **G** p265
Blanshard, J.M.V., Desai, R.A., Lowery, A.J., Christopoulos, C., Naylor, P., and Gregson, K. see Desai, R.A.
Blaumoser, M., Wieczorek, A., Fink, R., Oswald, J., Schwarz, J., and Vögtle, K.H. see Wieczorek, A.
Boarino, L., Amato, G., Benedetto, G., Maringelli, M., and Spagnolo, R. see Amato, G.
Bodger, P.S., MacDonald, S.J., and Elder, P.A. see MacDonald, S.J.
Boemo, E.I., Arechabala, J., Meneses, J., Moreno, F., and Lopez Barrio, C. see Arechabala, J.
Boissenot, P., Aboudou, A., Vilcot, J.P., Danneville, F., Decoster, D., Delhaye, E., Varin, C., Deschamps, F., and Lecuru, I. see Aboudou, A.
Boix, R.R., Martel, J., and Horno, M. see Martel, J.
Bokhari, S.A., Mosig, J.R., and Gardiol, F.E. Radiation pattern computation of microstrip antennas on finite size ground planes **H** p278
Bolis, S., Economou, E.G., and Philokyprou, G. Scheduling delay protocols integrating voice and data on a bus LAN **I** p407
Bolton, H.R., and Dolan, J.E. see Dolan, J.E.
Bond, L.J., and Yang, J. see Yang, J.
Bons, J.H., Johannessen, A.B., Prasad, R., and Weyland, N.B.J. see Johannessen, A.B.
Bonwick, W.J., and Hession, P.J. Fast measurement of real and reactive power in three-phase circuits **A** p51
Boon, C.S., and Takao, K. see Takao, K.
Bor, S.-S., and Yang, T.-L. see Yang, T.-L.
Bornemann, J., Cai, Z., Xiao, S., and Vahldieck, R. see Cai, Z.
Borojević, D., Huber, L., and Burány, N. see Huber, L.
Bosco, G.C., Pogliano, U., and Zago, G. see Pogliano, U.
Bosgra, O.H., Steinbuch, M., Terlouw, J.C., and Smit, S.G. see Steinbuch, M.
Bosisio, R.G., and Xu, Y. see Xu, Y.
Bossavit, A. Complementary formulations in steady-state eddy-current theory **A** p265
Botez, D. High-power monolithic phase-locked arrays of antiguided semicondcutor diode lasers **J** p14
Bouquin, R. Le, and Faucon, G. Using the coherence function for noise reduction **I** p276
Bour, D.P., and Evans, G.A. Lateral mode discrimination in AlGaInP selectively buried ridge waveguide lasers **J** p71
Boutayeb, M., and Darouach, M. see Darouach, M.
Boutlendj, M., Allen, N.L., Hughes, R.C., Lightfoot, H.A., and Neville, R.B. see Allen, N.L.
Boyle, J.-M., and Maciejowski, J.M. Expert aided sequential design of multivariable systems **D** p471
Boys, J.T., and Covic, G.A. see Covic, G.A.
Boys, J.T., and Handley, P.G. see Handley, P.G.
Boys, J.T., and Handley, P.G. Spread spectrum switching: low noise modulation technique for PWM inverter drives **B** p252
Bozeat, R.J., Benson, T.M., and Kendall, P.C. see Benson, T.M.
Bracho, S., Villar, E., Martínez, M., Sánchez, P., and Allende, M.A. VLSI design training and education in the University of Cantabria within EUROCHIP **G** p234
Bradford, W.J., and Griffiths, H.D. see Griffiths, H.D.
Braithwaite, S.J., and Gibbs, J.A. see Gibbs, J.A.
Bray, M.E., and Carroll, J.E. Crosstalk reduction in semiconductor laser amplifiers **J** p93
Brennan, P.V. Impedance matching method using passive lossless feedback **H** p397
Brennan, P.V., and Houghton, A.W. see Houghton, A.W.
Bridge, J.P., Ladbrooke, P.H., and Hill, A.J. Characterisation of GaAs FET and HEMT chips and packages for accurate hybrid circuit design **H** p330
Brosson, P.M., Miles, R.O., Dupertuis, M.A., and Reinhart, F.K. see Miles, R.O.
Brown, J.C., Allan, J., and Mellitt, B. Calculation and measurement of rail impedances applicable to remote short circuit fault currents **B** p295
Brown, J.C., Allan, J., and Mellitt, B. Calculation of remote short circuit fault currents for DC railways **B** p289
Brown, M.A., and Currie, A. see Currie, A.
Brown-Goebeler, K.F., Kiely, P.A., Taylor, G.W., Docter, D.P., Claisse, P.R., Vang, T., Evaldsson, P.A., Sargood, S.K., Daryanani, S., and Cooke, P. see Kiely, P.A.
Bucci, O.M., D'Elia, G., Leone, G., and Pierri, R. Far-field computation from amplitude near-field data on two surfaces: cylindrical case **H** p143
Bucci, O.M., and Di Massa, G. Open resonators powered by a rectangular waveguide **H** p323
Buckley, K.M., and Marks, J.A. see Marks, J.A.
Buechler, J., Luy, J.-F., Strohm, K.M., and Russer, P. see Luy, J.-F.
Bumby, J.R., and Safi, S.K. see Safi, S.K.
Burány, N., Huber, L., and Borojević, D. see Huber, L.
Burgess, N., and Balakrishnan, W. see Balakrishnan, W.
Burgess, N., and Lever, K.V. Fast linear congruential pseudorandom number generators using the Messerschmitt pipelining transformation **E** p131
Burke, S.V., Kendall, P.C., Ritchie, S., Robertson, M.J., and Robson, P.N. Analysis of rib waveguide coupler filters **J** p59
Burón, A., Ruiz, G., and Michell, J. see Ruiz, G.
Burr, A.G. Comparison of coherent and non-coherent modulation in the presence of phase noise **I** p147
Butler, C.M., Mannikko, P.D., and Courtney, C.C. see Mannikko, P.D.
Butler, C.M., and Silvestro, J.W. see Silvestro, J.W.

C

Çadirci, I., and Ermiş, M. Double-output induction generator operating at subsynchronous and supersynchronous speeds: steady-state performance optimisation and wind-energy recovery **B** p429
Cai, Z., Xiao, S., Bornemann, J., and Vahldieck, R. Tensor-based characteristic impedance calculations of microstrips on ferrite-dielectric substrates for integrated phase shifter applications **H** p125
Ćalović, M.S., Bjelogrlić, M.R., Ristanović, P.M., and Babić, B.S. see Bjelogrlić, M.R.
Cameron, R.G. Model validation by the distortion method: linear state space systems **D** p296
Cantoni, A., Hill, M., and Moors, T. see Hill, M.
Caorsi, S., Gragnani, G.L., and Pastorino, M. Numerical solution to three-dimensional inverse scattering for dielectric reconstruction purposes **H** p45
Capstick, M.H., Darwazeh, I., Lanc, P.M., Marnane, W.P., Moreira, P., Watkins, L.R., and O'Reilly, J.J. see Darwazeh, I.
Carballo, P.P., Sarmiento, R., and Núñez, A. see Sarmiento, R.
Carlosena, A., Müller, D., and Moschytz, G.S. Resistively variable capacitors using general impedance convertors **G** p507
Carlson, B.D., and Willner, W. Antenna pattern synthesis using weighted least squares **H** p11
Carnimeo, L., Fanti, M.P., Trovato, M., and Turchiano, B. Graph-theoretic decoupling technique for the design of synchronous generator controllers **D** p337
Carpenter, C.J. Electromagnetic energy and power in terms of charges and potentials instead of fields **A** d338
Carpenter, C.J. Electromagnetic theory without electric flux **A** p189
Carrasco, R.A., and Acha, V. see Acha, V.
Carroll, J.E., and Bray, M.E. see Bray, M.E.
Carruthers, C., and Mavor, J. Noise characteristics of *n*-channel deep-depletion mode MOS transistors **G** p377
Carter, C.N., and Waldron, M.A. Mathematical model of dry-band arcing on self-supporting, all-dielectric, optical cables strung on overhead power lines **C** p185
Carter, P.P.S., and Turkmani, A.M.D. Performance evaluation of Rayleigh and log-normal GMSK signals in the presence of cochannel interference **I** p156
Casini, A., Mongatti, G., Alparone, L., Benelli, G., Baronti, S., and Lotti, F. see Mongatti, G.
Catelani, M.A., Iuculano, G., Mirri, D., Filicori, F., and Menchetti, A. Criterion for the performance analysis of synchronous and asynchronous sampling instruments based on nonlinear processing **A** p141
Cavicchi, T.J. DFT time-domain interpolation **F** p207
Cederbaum, I. Analogy between VLSI floorplanning problems and realisation of a resistive network **G** p99
Celozzi, S., and D'Amore, M. Prediction models of standing wave patterns of distribution line carrier channels **C** p102
Centeno, A.E., and Morgan, G.B. Design of millimetre wave dielectric resonators for integrated circuits **H** p307
Chai, H., and Acarnley, P.P. Induction motor parameter estimation algorithm using spectral analysis **B** p165
Chakravarthy, S.K., Nayar, C.V., and Achuthan, N.R. Applying pattern recognition in distance relaying. Part 1: Concept **C** p301
Chakravarthy, S.K., Nayar, C.V., and Achuthan, N.R. Applying pattern recognition in distance relaying. Part 2: Feasibility **C** p306
Chalmers, B.J. Influence of saturation in brushless permanent-magnet motor drives **B** p51
Chalmers, B.J., and Spooner, E. see Spooner, E.
Chambers, B., Smith, F.C., and Bennett, J.C. see Smith, F.C.
Chan, K.Y., and Bateman, A. Performance of MPSK trellis-coded modulation in Rayleigh fading with an imperfect phase reference **I** p329
Chan, T.T., Chang, C.S., and Lee, K.K. see Chang, C.S.
Chang, A.O.T., Kouvaritakis, B., and Rossiter, J.A. see Kouvaritakis, B.
Chang, C.C., and Laih, C.S. Remote password authentication with smart cards **E** p372
Chang, C.S. Co-ordinated static and dynamic monitoring and optimisation of power systems using a parallel architecture and pattern recognition techniques **C** p197
Chang, C.S., Chan, T.T., and Lee, K.K. Network switching and voltage evaluation using an expert system in AC railway systems **B** p1
Chang, J.-D., and Chen, T.-H. see Chen, T.-H.
Chang, K.-S., Lu, S.-T., Wu, Y.-P., and Chou, C. Correction algorithms in a laser scanning dimension measurement system **A** p57
Chang, R.F., Chen, W.T., and Wang, J.S. Image sequence coding using adaptive tree-structured vector quantisation with multipath searching **I** p9
Chang, S, Chen, Y-C, and Lin, P-L see Chen, Y-C
Chang, Y.-J., Wu, J.-L.C., and Ho, H.-J. Optimal virtual circuit routing in computer networks **I** p625
Chang-Liao, K.-S., and Hwu, J.-G. Performance prediction and function recovery of CMOS circuits damaged by Co-60 irradiation **G** p319
Charalambous, C. Conjugate gradient algorithm for efficient training of artificial neural networks **G** p301
Charalambous, C., and Saleh, M.M. Design of zero-phase spherically symmetric *N*-dimensional IIR digital filters **G** p419
Chebbo, A.M., Irving, M.R., and Sterling, M.J.H. Reactive power dispatch incorporating voltage stability **C** p253
Chebbo, A.M., Irving, M.R., and Sterling, M.J.H. Voltage collapse proximity indicator: behaviour and implications **C** p241
Chen, B.-S., Peng, S.-C., and Chiou, B.-W. IIR filter design via optimal Hankel–norm approximation **G** p586
Chen, C.-H., Guo, T.-Y., Hwang, C., and Shieh, L.-S. see Guo, T.-Y.
Chen, C.-H., and Chen, Y.-H. see Chen, Y.-H.
Chen, C.-P., Chen, P.-C., Liu, B.-D., and Wang, J.-F. see Chen, P.-C.
Chen, C.H., Liu, B.D., Tsay, C.S., and Fuh, R.L. see Liu, B.D.
Chen, C.S., Ma, S., Zhou, H., and Yuan, J. see Ma, S.
Chen, C.Y.R., and Singh, U. see Singh, U.

Chen, D.J., and Sheu, B.J. Generalised approach to automatic custom layout of analogue ICs **G** p481
Chen, G.P., Malik, O.P., Hope, G.S., Qin, Y.H., and Xu, G.Y. see Malik, O.P.
Chen, H.-T., and Wong, K.-L. see Wong, K.-L.
Chen, P.-C., Liu, B.-D., Wang, J.-F., and Chen, C.-P. New partial scan design based on hard fault distribution analysis **E** p457
Chen, S., Grant, P.M., and Cowan, C.F.N. Orthogonal least-squares algorithm for training multi-output radial basis function networks **F** p378
Chen, S.-H., Lee, L.-S., and Hwang, H.-K. see Lee, L.-S.
Chen, T.-C., and Pan, C.-T. Modelling and design of a single phase AC to DC convertor **B** p465
Chen, T.-H., and Chang, J.-D. Open wye-open delta and open delta-open delta transformer models for rigorous distribution system analysis **C** p227
Chen, W.T., Chang, R.F., and Wang, J.S. see Chang, R.F.
Chen, X., Chen, Z., and Lai, H. see Chen, Z.
Chen, X., and Dagless, E.L. Adaptive linear phase complex-real steered algorithms **F** p283
Chen, X., and Leslie, I.M. Neural adaptive congestion control for broadband ATM networks **I** p233
Chen, X.-H., and Oksman, J. BER performance analysis of 4-CCL and 5-CCL codes in slotted indoor CDMA systems **I** p79
Chen, X.H., Lu, W.X., and Oksman, J. Use of code sensing technique in the receiver-based spreading code protocol and its performance analysis **I** p85
Chen, X.H., and Oksman, J. Busy code broadcasting and sensing protocol for collision-free CDMA packet radio networks and its performance analysis **I** p613
Chen, X.S., and Neudorfer, P. Digital model for transient studies of a three-phase five-legged transformer **C** p351
Chen, Y-C, Lin, P-L, and Chang, S Design of output tracking via variable structure system: for plants with redundant inputs **D** p421
Chen, Y., Simpson, T.L., and Ho, T.Q. Highly efficient technique for solving radiation and scattering problems **H** p7
Chen, Y.-H., and Chen, C.-H. Direction-of-arrival and frequency estimations for narrowband sources using two single rotation invariance algorithms with the marked subspace **F** p297
Chen, Z., Chen, X., and Lai, H. Effect of beam power on imaging characteristics of Gaussian beams with a defocusing GRIN rod lens **J** p309
Cheng, C.-F., and Wang, W.-J. see Wang, W.-J.
Cheng, K.W.E., and Evans, P.D. Constant frequency, two-stage quasiresonant convertor **B** p227
Cherepanov, A.S., Tretyakov, S.A., and Oksanen, M.I. see Tretyakov, S.A.
Cherkaoui, M., Machmoum, M., Le Doeuff, R., and Sargos, F.M. see Machmoum, M.
Chern, T.-L., and Wu, Y.-C. Integral variable structure control approach for robot manipulators **D** p161
Cheung, J.C.S., Wilson, B., and Ghassemlooy, Z. see Wilson, B.
Cheung, P.Y.K., Ferrari, A., de Wilde, P., and Benyon-Tinker, G. Neural network processor: A vehicle for teaching system design **G** p244
Chiang, H.-D., Thorp, J.S., Wang, J.-C., Lu, J., and Aubert, B. Optimal controller placements in large-scale linear systems **D** p79
Chiang, Y.-C., Tzuang, C.-K.C., and Su, S. Design of a three-dimensional gap-coupled suspended substrate stripline bandpass filter **H** p376
Chin, F., Ko, C.C., and Balabhaskar, G. see Ko, C.C.
Chin, F., Ko, C.C., and Wen, J. see Ko, C.C.
Chiodo, E., Losi, A., Mongelluzzo, R., and Rossi, F. Capability chart for electrical power systems **C** p71
Chiou, B.-W., Chen, B.-S., and Peng, S.-C. see Chen, B.-S.
Chong, J.W.W., and Forbes, R.G. Design of basic CMOS cell library **G** p256
Chou, C., Chang, K.-S., Lu, S.-T., and Wu, Y.-P. see Chang, K.-S.
Chow, H.-C., Feng, W.-S., and Kuo, J.B. Simple analytical model for short-channel MOS devices **G** p405
Chowdhury, A.A., and Billinton, R. see Billinton, R.
Christensen, E.L., Dall, J., Jørgensen, J.H., and Madsen, S.N. see Dall, J.
Christopoulos, C., Desai, R.A., Lowery, A.J., Naylor, P., Blanshard, J.M.V., and Gregson, K. see Desai, R.A.
Christopoulos, C., and Hui, S.Y.R. see Hui, S.Y.R.
Cichocki, A., and Łobos, T. Adaptive analogue network for real-time estimation of basic waveforms of voltages and currents **C** p343
Ciminiera, L., Montuschi, P., and Valenzano, A. see Montuschi, P.
Claassen, M., and Harth, W. Field rate equation and linewidth of semiconductor laser with inhomogeneous resonator medium **J** p50
Claisse, P.R., Kiely, P.A., Taylor, G.W., Docter, D.P., Vang, T., Evaldsson, P.A., Sargood, S.K., Daryanani, S., Cooke, P., and Brown-Goebeler, K.F. see Kiely, P.A.
Clarke, D.W., and Demircioğlu, H. see Demircioğlu, H.
Clarke, R.J. On transform coding of motion-compensated difference images **I** p372
Clarke, R.J., and Cordell, P.J. see Cordell, P.J.
Clarke, R.J., and Soryani, M. see Soryani, M.
Clarke, R.J., and Wang, Q. see Wang, Q.
Clarke, R.N., Jenkins, S., and Warham, A.G.P. see Jenkins, S.
Clarke, R.N., Johnson, R.H., Green, J.L., Robinson, M.P., and Preece, A.W. see Johnson, R.H.
Clarke, R.N., and Lynch, A.C. see Lynch, A.C.
Cluett, W.R., and Wang, L. Frequency smoothing using Laguerre model **D** p88
Coakley, F.P., Bi, G., and Evans, B.G. see Bi, G.
Coakley, F.P., Yim, W.H., and Evans, B.G. see Yim, W.H.
Cobley, R. VLSI design and CAE at Exeter University **G** p183
Coelho, J., Leite da Silva, A.M., and Melo, A.C.G. see Leite da Silva, A.M.
Coles, A.N., Constable, J.A., White, I.H., and Cunningham, D.G. see Constable, J.A.
Colley, M.J., Massara, R.E., Standeven, J., Green, A.D.P., Mack, R.J., Monaghan, S., Noakes, P.D., Ritchie, G.J., and Sagar, V.K. see Massara, R.E.
Collier, R.J., and D'Souza, M.F. Comparison of junctions in both dielectic guides and metallic guides above 75 GHz **A** p226
Collier, R.J., and D'Souza, M.F. Phase shifters for dielectric guides **H** p202
Conlon, M., Wilcox, D.J., Hurley, W.G., and McHale, T.P. see Wilcox, D.J.
Constable, J.A., White, I.H., Coles, A.N., and Cunningham, D.G. Harmonic and phase distortion of analogue amplitude-modulated signals in bulk near travelling-wave semiconductor optical amplifiers **J** p389
Constantinides, A.G., and Skodras, A.N. see Skodras, A.N.
Constantinou, C.C., and Jones, R.C. Path-integral analysis of an arbitrarily tapered, multimode, graded-index waveguide; the inverse-square-law and parabolic tapers **J** p365
Cook, G.G., Lord, J.A., and Anderson, A.P. see Lord, J.A.
Cooke, G.H., and Williams, K.T. New thyristor assisted diverter switch for on load transformer tap changers **B** p507
Cooke, P., Kiely, P.A., Taylor, G.W., Docter, D.P., Claisse, P.R., Vang, T., Evaldsson, P.A., Sargood, S.K., Daryanani, S., and Brown-Goebeler, K.F. see Kiely, P.A.
Cooper, C.B., Jweiles, Z.A., and Khan, G.A. Contribution of single-phase motors to system fault level **C** p359
Cooper, J.M., Auckland, D.W., and Varlow, B.R. see Auckland, D.W.
Cordell, P.J., and Clarke, R.J. Low bit-rate image sequence coding using spatial decomposition **I** p575
Cormier, R., Hori, N., and Kanai, K. see Hori, N.
Cornick, K.J., Guardado, J.L., and Bekaert, P. Interturn voltages in machine windings evaluated from on-site test results and computer simulation **B** p238
Cory, H., and Tamir, T. Coupling processes in circular open chirowaveguides **H** p165
Couffignal, P., Obregon, J., and Baudrand, H. Equivalent circuit of a cavity coupled to a feeding line and its dependence on the electric or magnetic nature of output coupling structure **H** p221
Courtney, C.C., Mannikko, P.D., and Butler, C.M. see Mannikko, P.D.
Covic, G.A., and Boys, J.T. Operating restrictions for third harmonic control of flux in induction machines **B** p485
Cowan, C.F.N., Chen, S., and Grant, P.M. see Chen, S.
Cox, C.H. Gain and noise figure in analogue fibre-optic links **J** p238
Crisan, O., and Mohtadi, M.A. Efficient identification of binding inequality constraints in the optimal power flow Newton approach **C** p365
Cristina, S., and Orlandi, A. Calculation of the induced effects due to a lightning stroke **B** p374
Cronin, L.B., and Kemp, C.J. Current shunts and resistors in use in NAMAS accredited laboratories **A** p179
Cruz, J.L., Navarro, E.A., Such, V., and Gimeno, B. see Navarro, E.A.
Cryan, R.A., and Unwin, R.T. Reed–Solomon coded homodyne digital pulse position modulation **I** p140
Cubiss, C., Elliott, J.A., Grant, P.M., and McDonnell, J.T.E. see Elliott, J.A.
Cudd, P.A., Benson, F.A., and Tealby, J.M. see Benson, F.A.
Culshaw, B., and Jin, W. see Jin, W.
Cunningham, D.G., Constable, J.A., White, I.H., and Coles, A.N. see Constable, J.A.
Currie, A., and Brown, M.A. Wide-swath SAR **F** p122
Czarkowski, D., and Kazimierczuk, M.K. Static- and dynamic-circuit models of PWM buck-derived DC–DC convertors **G** p669
Czarnecki, L.S. Distortion power in systems with nonsinusoidal voltage **B** p276
Czarnecki, L.S. Minimisation of unbalanced and reactive currents in three-phase asymmetrical circuits with nonsinusoidal voltage **B** p347

D

D'Amore, M., and Celozzi, S. see Celozzi, S.
D'Elia, G., Bucci, O.M., Leone, G., and Pierri, R. see Bucci, O.M.
D'Souza, M.F., and Collier, R.J. see Collier, R.J.
Dąbrowski, A., Menzi, U., and Moschytz, G.S. Design of switched-capacitor FIR filters with application to a low-power MFSK receiver **G** p450
Dagless, E.L., and Chen, X. see Chen, X.
Dai, H., and Sinha, N.K. Robust identification of systems using block-pulse functions **D** p308
Dale, B.G., and Shaw, P. Statistical process control in PCB manufacture: what are the lessons? **A** p182
Dall, J., Jørgensen, J.H., Christensen, E.L., and Madsen, S.N. Real-time processor for the Danish airborne SAR **F** p115
Dallago, E., and Sassone, G. Analogue simulation of a DC brushless drive **B** p245
Damborg, M., Weerasooriya, S., El-Sharkawi, M.A., and Marks II, R.J. see Weerasooriya, S.
Danneville, F., Aboudou, A., Vilcot, J.P., Decoster, D., Delhaye, E., Boissenot, P., Varin, C., Deschamps, F., and Lecuru, I. see Aboudou, A.
Darbyshire, E.P., and Gott, G.F. A chirp modem incorporating interference excision **I** p395
Darouach, M., and Boutayeb, M. Recursive state and parameter estimation of SISO singular systems **D** p204
Darwazeh, I., Lane, P.M., Marnane, W.P., Moreira, P., Watkins, L.R., Capstick, M.H., and O'Reilly, J.J. GaAs MMIC optical receiver with embedded signal processing **G** p241
Daryanani, S., Kiely, P.A., Taylor, G.W., Docter, D.P., Claisse, P.R., Vang, T., Evaldsson, P.A., Sargood, S.K., Cooke, P., and Brown-Goebeler, K.F. see Kiely, P.A.
Das R, Jitedra, and Yoganandam, Y. Effect of system noise on the performance of a non-coherent monopulse processor **F** p61
David, A.K., and Li, Y.Z. Consumer rationality assumptions in the real-time pricing of electricity **C** p315
David, K., Willems, J., Morthier, G., and Baets, R. see Willems, J.
Davies, E.R. Accurate filter for removing impulse noise from one- or two-dimensional signals **E** p111
Davies, E.R. Modelling peak shapes obtained by Hough transform **E** p9
Davies, E.R. Simple two-stage method for the accurate location of Hough transform peaks **E** p242
Davis, L.E., and Dmitriyev, V.A. see Dmitriyev, V.A.
De La Rue, R.M., Zhou, Y., Laybourn, P.J.R., and Magill, J.V. see Zhou, Y.
De wilde, P., Cheung, P.Y.K. Ferrari, A., and Benyon-Tinker, G. see Cheung, P.Y.K.
De Fornel, B., Roboam, X., Andrieux, C., and Hapiot, J.C. see Roboam, X.
De La Rue, R.M., and Shenoy, M.R. see Shenoy, M.R.
Debernardi, P., and Montrosset, I. TE and TM coupling coefficients for index-gain multigrating waveguides **J** p127
Debono, P., Stylianou, A., and Vardaxoglou, J.C. see Stylianou, A.
Decoster, D., Aboudou, A., Vilcot, J.P., Danneville, F., Delhaye, E., Boissenot, P., Varin, C., Deschamps, F., and Lecuru, I. see Aboudou, A.
Delhaye, E., Aboudou, A., Vilcot, J.P., Danneville, F., Decoster, D., Boissenot, P., Varin, C., Deschamps, F., and Lecuru, I. see Aboudou, A.
Demircioğlu, H., and Clarke, D.W. CGPC with guaranteed stability properties **D** p371
Desai, R.A., Lowery, A.J., Christopoulos, C., Naylor, P., Blanshard, J.M.V., and Gregson, K. Computer modelling of microwave cooking using the transmission-line model **A** p30
Deschamps, F., Aboudou, A., Vilcot, J.P., Danneville, F., Decoster, D., Delhaye, E., Boissenot, P., Varin, C., and Lecuru, I. see Aboudou, A.
Di Massa, G., and Bucci, O.M. see Bucci, O.M.
Di, X., Glisson, A.W., and Michalski, K.A. Analysis of a dielectric resonator antenna in a cylindrical conducting cavity: TE and TM modes **H** p453
Diab, H.B., and Tabbara, H.S. Educational tool for design of parallel processing systems **A** p1
Dias, V.F., Palmisano, G., O'Leary, P., and Maloberti, F. Fundamental limitations of switched-capacitor sigma-delta modulators **G** p27
Dias, V.F., Palmisano, G., and Maloberti, F. Noise in mixed continuous-time switched-capacitor sigma-delta modulators **G** p680
Dickin, F.J., Hoyle, B.S., Hunt, A, Huang, S.M., Ilyas, O., Lenn, C., Waterfall, R.C., Williams, R.A., Xie, C.G., and Beck, M.S. Tomographic imaging of industrial process equipment: techniques and applications **G** p72
Diez, T., Luque, E., and Ripoll, A. see Luque, E.
Ding, H., and Fahmy, M.M. Synchronised linear almost periodically time-varying adaptive filter **I** p429
Djukanovic, M., Sobajic, D.J., and Pao, Y.-H.

Neural net based determination of generator-shedding requirements in electric power systems **C** p427
Dmitriyev, V.A., and Davis, L.E. Nonreciprocal devices using ferrite ring resonators **H** p257
Docter, D.P., Kiely, P.A., Taylor, G.W., Claisse, P.R., Vang, T., Evaldsson, P.A., Sargood, S.K., Daryanani, S., Cooke, P., and Brown-Goebeler, K.F. see Kiely, P.A.
Dolan, J.E. Improved TLM method for the solution of coupled circuit equations **A** p315
Dolan, J.E., and Bolton, H.R. Gyromagnetic interpretation of the magnetisation characteristics of fast-pulsed amorphous tapes **A** p129
Doulai, P., and Ledwich, G. Co-ordinated three-phase hysteretic-control scheme for active power filtering **B** p457
Driscoll, T.J., Lawandy, N.M., and Adler, C.L. see Lawandy, N.M.
Düser, H., Möhrle, M., Rozenweig, M., and Grützmacher, D. see Möhrle, M.
Duan, G.-R. Simple algorithm for robust pole assignment in linear output feedback **D** p465
Dubey, V.K., Lim, N.K., and Gunawan, E. Performance evaluation of pragmatic TCM codes through band-limited nonlinear satellite channel: a computer simulation approach **I** p15
Duffy, M.C. Three-phase motor in railway traction **A** p329
Dunlop, J., Girma, D., and Lysaght, P. Alternative approach to ASIC design methodology based on reconfigurable logic devices **G** p217
Dupertuis, M.A., Miles, R.O., Reinhart, F.K., and Brosson, P.M. see Miles, R.O.
Durga Prasad, G., Jana, A.K., and Dutta Gupta, P.B. see Jana, A.K.
Dutta Gupta, P.B., Jana, A.K., and Durga Prasad, G. see Jana, A.K.
Dyson, P.L., and Bennett, J.A. Exact ray path calculations using realistic ionospheres **H** p407

E

Economou, E.G., Bolis, S., and Philokyprou, G. see Bolis, S.
Edirisooriya, G., and Robinson, J.P. Performance of signature registers in the presence of correlated errors **E** p393
Edmunds, J.M., and Zhang, B.S. see Zhang, B.S.
Eguchi, M., Koshiba, M., Saitoh, H., and Hirayama, K. see Koshiba, M.
El-Ela, Adel Ali Abou Fast and accurate technique for power system state estimation **C** p7
El-Hajj, A., Kabalan, K.Y., and Harrington, R.F. see Kabalan, K.Y.
El-Hajj, A., Kabalan, K.Y., and Yehia, M. Simulation of a class of integrated circuits using spreadsheets **G** p607
El-Hennawy, A., and Al-Ghamdi, F. Study and characterisation of MOSFET integrated magnetodetector based on hot carrier detection **G** p119
El-Maghraby, M.H., Thejel, R.H., and Ibrahim, M.M. New approach for the analysis of a three-phase induction motor of different ratings connected to a single-phase supply **B** p145
El-Sharkawi, M.A., Weerasooriya, S., Damborg, M., and Marks II, R.J. see Weerasooriya, S.
Elder, P.A., MacDonald, S.J., and Bodger, P.S. see MacDonald, S.J.
Elia, M., Losana, C., and Neri, F. Note on the complete decoding of Kerdock codes **I** p24
Eliades, D.E. Paraxial radio-wave propagation over a ridge or valley **H** p424
Eliades, D.E. Path integral analysis of paraxial radiowave propagation over a cliff edge **H** p84
Elliott, J.A., Cubiss, C., Grant, P.M., and McDonnell, J.T.E. Real-time simulation of videophone image coding algorithms on reconfigurable multicomputers **E** p269
Emura, K., and Jacobsen, G. see Jacobsen, G.
Endean, V.G. Adaptive learning circuit based on the Walsh transform **G** p23
Endean, V.G. Electromagnetic field energy containment **A** p137
England, P.J., and Rodriguez-Tellez, J. see Rodriguez-Tellez, J.
Er, M.H., and Ng, B.C. Linear antenna array design with partial adaptivity **H** p25
Ermiş, M., Ertan, H.B., Akpınar, E., and Ülgüt, F. Autonomous wind energy conversion system with a simple controller for maximum-power transfer **B** p421
Ermiş, M., and Çadirci, I. see Çadirci, I.
Ermutlu, M.E., Lindell, I.V., and Sihvola, A.H. see Lindell, I.V.
Ertan, H.B., Ermiş, M., Akpınar, E., and Ülgüt, F. see Ermiş, M.
Eskicioğlu, A.M., and Sevaioğlu, O. Feasibility of Lyapunov functions for power system transient stability analysis by the controlling UEP method **C** p152
Esman, R.D., Goldberg, L., and Williams, K.J. see Goldberg, L.
Esonu, M.O., Al-Khalili, A.J., Hariri, S., and Al-Khalili, D. Systolic arrays: how to choose them **E** p179
Evaldsson, P.A., Kiely, P.A., Taylor, G.W., Docter, D.P., Claisse, P.R., Vang, T., Sargood, S.K., Daryanani, S., Cooke, P., and Brown-Goebeler, K.F. see Kiely, P.A.
Evans, B.G., Bi, G., and Coakley, F.P. see Bi, G.
Evans, B.G., Yim, W.H., and Coakley, F.P. see Yim, W.H.
Evans, G.A., and Bour, D.P. see Bour, D.P.
Evans, P.D., and Cheng, K.W.E. see Cheng, K.W.E.
Evans, P.D., and Heffernan, W.J.B. see Heffernan, W.J.B.
Evans, P.S.A., Pritchard, T.I., and Taylor, D. see Pritchard, T.I.
Excell, P.S. Microwave breakdown in a point-to-plane electrode gap **A** p89

F

Fabre, A., and Houle, J.-L. Voltage-mode and current-mode Sallen-Key implementations based on translinear conveyors **G** p491
Fahmy, M.M., and Ding, H. see Ding, H.
Fairman, F., and Shi, Z. see Shi, Z.
Fakhro, S.Q., and Akbaba, M. see Akbaba, M.
Fallside, F. Two trends in artificial neural networks **F** p369
Fantacci, R. Throughput efficiency and queueing analysis of generalised stop-and-wait ARQ protocols **I** p251
Fanti, M.P., Carnimeo, L., Trovato, M., and Turchiano, B. see Carnimeo, L.
Farhang-Boroujeny, B., and Gazor, S. Selection of orthonormal transforms for improving the performance of the transform domain normalised LMS algorithm **F** p327
Farina, A., Aluffi Pentini, F., and Zirilli, F. see Aluffi Pentini, F.
Farina, A., and Barbarossa, S. see Barbarossa, S.
Farnworth, R.G., Last, J.D., and Searle, M.D. see Last, J.D.
Faruque, S.M., Raut, R., and Bhattacharyya, B.B. see Raut, R.
Faucon, G., and Bouquin, R. Le see Bouquin, R. Le
Feng, G., and Palaniswami, M. Adaptive implementation of internal model principle for continuous time systems **D** p167
Feng, W.-S., Chow, H.-C., and Kuo, J.B. see Chow, H.-C.
Feng, Z.-M., Xiao, C.-S., and Shan, X.-M. see Xiao, C.-S.
Fernandes, C.F., and Santos, H.A. Probabilistic approach for hot electron transport **G** p569
Ferrari, A., Cheung, P.Y.K., de Wilde, P., and Benyon-Tinker, G. see Cheung, P.Y.K.
Ferreira, J.A. Analytical computation of AC resistance of round and rectangular litz wire windings **B** p21
Ferreira, L.A.F.M. Short-term scheduling of a pumped storage plant **C** p521
Ferreira, L.A.F.M. Tellegen theorem and modelling of power systems — PV buses and nonlinear formulas **G** p136
Filicori, F., Catelani, M.A., Iuculano, G., Mirri, D., and Menchetti, A. see Catelani, M.A.
Findlay, P.A., Steven, G.B., Adams, R.G., and Trainis, S.A. see Steven, G.B.
Fines, P., and Aghvami, A.H. A comparison study of low bit rate DE-QPSK, TCM 8-ary PSK and 16-ary DE-QAM fully digital demodulators operating over a land mobile satellite link **I** p319
Fink, R., Wieczorek, A., Blaumoser, M., Oswald, J., Schwarz, J., and Vögtle, K.H. see Wieczorek, A.
Fisher, D.G., and Lu, W. see Lu, W.
Fisher, M.A., Mudhar, P.S., Mace, D.A.H., Singh, J., and Adams, M.J. see Mudhar, P.S.
Fleming, P.J., Ruano, A.E.B., and Jones, D.I. see Ruano, A.E.B.
Fletcher, P.N., Hardaker, P.J., Auchterlonie, L.J., and Holt, A.R. Comparison of experimental and theoretical scattering effects from melting ice spheres at microwave and millimetre-wave frequencies **H** p545
Flórez, J., and Arruti, A. see Arruti, A.
Foch, H., Metz, M., Roux, J., Ben Doua, S., and Arches, J.P. see Metz, M.
Forbes, R.G., and Chong, J.W.W. see Chong, J.W.W.
Forsyth, A.J., Ma, S.H., and Leung, Y.T. Dynamic characteristics of the class E DC/DC convertor using sampled-data modelling **B** p409
Fortune, P.M., Hanzo, L., Salami, R., and Steele, R. see Hanzo, L.
Foulkes, P. Using predicted irradiation profiles to extract shape information from infrared images **I** p569
Franceschetti, G., Lanari, R., Pascazio, V., and Schirinzi, G. WASAR: a wide-angle SAR processor **F** p107
Frater, M.R., and Pike, D.B. Computer-aided interactive filter design using templates **G** p277
Friedrich, M., and Rochotzki, R. see Rochotzki, R.
Fu, J., and Song, B. see Song, B.
Fuchs, W.K., and Kuo, S.-Y. see Kuo, S.-Y.
Fuh, R.L., Liu, B.D., Tsay, C.S., and Chen, C.H. see Liu, B.D.
Fujita, H., and Sakui, M. see Sakui, M.
Fujiwara, T., Yamada, H., and Oka, H. Electro-optical measurement of an induced toroidal electric field in water **A** p84
Fyath, R.S., Medeiros, C.R., and O'Reilly, J.J. see Medeiros, C.R.

G

Galati, G., Perna, S., and Abbati, M. Quasibistatic random arrays **F** p193
Gamberger, D. Inversion of integer matrices in residue number system **E** p465
Ganesh, R., and Pahlavan, K. Statistical characterisation of a partitioned indoor radio channel **I** p539
Gao, D.S., Morikuni, J.J., and Kang, S.M. see Morikuni, J.J.
Garcia, G., Bernussou, J., and Berbiche, M. Pattern recognition applied to transient stability analysis of power systems with modelling including voltage and speed regulation **B** p321
Gardiol, F.E., Bokhari, S.A., and Mosig, J.R. see Bokhari, S.A.
Gargour, C.S., Ramachandran, V., and Ahmadi, M. Inversion of continued-fraction expansion of multidimensional transfer functions using derivatives and graphs **G** p395
Gazor, S., and Farhang-Boroujeny, B. see Farhang-Boroujeny, B.
Gevorgian, S.S. Design considerations for an optically excited semiconductor microstrip gap at microwave frequencies **J** p153
Ghassemlooy, Z., Wilson, B., and Cheung, J.C.S. see Wilson, B.
Ghosh, A.K., and Paparao, P. Performance of modified Faddeev algorithm on optical processors **J** p325
Ghosh, D., and Patranabis, D. Software based linearisation of thermistor type nonlinearity **G** p339
Gibbard, M.J., and Merchant, R.W. see Merchant, R.W.
Gibbs, J.A., and Braithwaite, S.J. Convolutionally encoded FFH-MFSK: demodulation and frequency tracking over frequency-varying jammed channels **I** p386
Gill, D.C., and Goodman, C.J. Computer-based optimisation techniques for mass transit railway signalling design **B** p261
Gillner, L. Comparative study of some travelling-wave semiconductor laser amplifier models **J** p339
Gillner, L. Modulation properties of a near travelling-wave semiconductor laser amplifier **J** p331
Gimeno, B., Navarro, E.A., Such, V., and Cruz, J.L. see Navarro, E.A.
Gionas, I., Lin, J., and Roberts, P.D. see Lin, J.
Girma, D., Dunlop, J., and Lysaght, P. see Dunlop, J.
Glisson, A.W., Di, X., and Michalski, K.A. see Di, X.
Goddard, J.W.F., and Thurai, M. see Thurai, M.
Godec, Z., and Šarunac, R. Steady-state temperature rises of ONAN/ONAF/OFAF transformers **C** p448
Goel, L., and Billinton, R. see Billinton, R.
Goldberg, L., Esman, R.D., and Williams, K.J. Generation and control of microwave signals by optical techniques **J** p288
Goldberg, M., and Wang, L. see Wang, L.
Goodall, R.M., Warren-Forward, M.J., and Pratt, D.J. see Warren-Forward, M.J.
Goodman, C.J., and Gill, D.C. see Gill, D.C.
Goodman, D.J., and Wong, W.C. see Wong, W.C.
Goodwin, A., Ainscough, J., Southall, D.M., and Oakey, S. see Ainscough, J.
Goodwin, M.J., Kirkby, C.J.G., Moseley, A.J., Robbins, D.J., Kearley, M.Q., and Thompson, J. see Kirkby, C.J.G.
Goodyear, C.C., Greenwood, A.R., and Martin, P.A. see Greenwood, A.R.
Goto, N., Takahashi, M., Takada, J., and Ando, M. see Takahashi, M.
Gott, G.F., and Darbyshire, E.P. see Darbyshire, E.P.
Gragnani, G.L., Caorsi, S., and Pastorino, M. see Caorsi, S.
Gramss, T. Fast learning-algorithms for a self-optimising neural network with an application to isolated word recognition **F** p391
Grant, P.M., Chen, S., and Cowan, C.F.N. see Chen, S.
Grant, P.M., Elliott, J.A., Cubiss, C., and McDonnell, J.T.E. see Elliott, J.A.
Grant, P.M., Hamilton, R.J., and Pringle, R.D. see Hamilton, R.J.
Grant, P.M., Mowbray, R.S., and Pringle, R.D. see Mowbray, R.S.
Graovac, M., and Nahman, J. see Nahman, J.
Grattan, C.L. Compact-scan, plane-polar microwave holographic technique for reflector antenna profile measurement **H** p91
Gray, W.M., Mahfouf, M., Linkens, D.A., Asbury, A.J., and Peacock, J.E. see Mahfouf, M.
Green, A.D.P., Massara, R.E., Standeven, J., Colley, M.J., Mack, R.J., Monaghan, S., Noakes, P.D., Ritchie, G.J., and Sagar, V.K. see Massara, R.E.
Green, D.H., and Amarasinghe, S.K. Sequences and arrays derived from nonprimitive irreducible polynomials **E** p363
Green, D.H., and Khuwaja, G.A. Simplification of switching functions expressed in Reed–Muller algebraic form **E** p511
Green, J.L., Johnson, R.H., Robinson, M.P., Preece, A.W., and Clarke, R.N. see Johnson, R.H.

Greenwood, A.R., Goodyear, C.C., and Martin, P.A. Measurements of vocal tract shapes using magnetic resonance imaging **I** p553
Gregson, K., Desai, R.A., Lowery, A.J., Christopoulos, C., Naylor, P., and Blanshard, J.M.V. see Desai, R.A.
Griffiths, H.D. Remote sensing by radar **F** p105
Griffiths, H.D., and Bradford, W.J. Digital generation of high time-bandwidth product linear FM waveforms for radar altimeters **F** p160
Grimble, M.J. LOG optimal control design for uncertain systems **D** p21
Grimble, M.J. Youla parameterised two and a half degrees of freedom LQG controller and robustness improvement cost weighting **D** p147
Group, COST 217 Interlaboratory evaluation of theoretical modelling techniques for single-mode optical fibres **J** p353
Grützmacher, D., Möhrle, M., Rozenweig, M., and Düser, H. see Möhrle, M.
Gu, G., and Misra, P. Identification of linear time-invariant systems from frequency-response data corrupted by bounded noise **D** p135
Gu, Q., Sheen, D.M., and Ali, S.M. Analysis of transients in frequency-dependent interconnections and planar circuits with nonlinear loads **H** p38
Guardado, J.L., Cornick, K.J., and Bekaert, P. see Cornick, K.J.
Gudvangen, S., and Holt, A.G.J. Computation of 2-dimensional fast transforms and image filtering on transputer networks **E** p249
Guggenbühl, W., and Robertini, A. see Robertini, A.
Guillon, P., Madrangeas, B., Jarry, B., Larroque, J., Theron, B., and Parise, D. see Madrangeas, B.
Gunawan, E., Dubey, V.K., and Lim, N.K. see Dubey, V.K.
Guo, T.-Y., Hwang, C., Shieh, L.-S., and Chen, C.-H. Reduced-order models of 2-D linear discrete separable-denominator system using bilinear Routh approximations **G** p45
Guoqing, Yang, Songcan, Chen, and Jun, Lu Multilayer parallel distributed pattern recognition system model using sparse RAM nets **E** p144
Gupta, M.S. Power combining efficiency and its optimisation **H** p233
Gupta, R.K., Sinha, A.K., Verma, R., Kumar, L., Joshi, S.N., Jain, P.K., and Basu, B.N. see Sinha, A.K.
Gyugyi, L. Unified power-flow control concept for flexible AC transmission systems **C** p323

H

Habibi, S.R., and Richards, R.J. Sliding mode control of an electrically powered industrial robot **D** p207
Hagen, R., and Hedelin, P. Spectral coding by LSP frequencies — scalar and segmented VQ-methods **I** p118
Hahn, H., Hosticka, B.J., and Timmermann, D. Alternative signal processor arithmetic for modified implementation of a normalised adaptive channel equaliser **F** p36
Haig, T.D., Attikiouzel, Y., and Alder, M.D. Border following: new definition gives improved borders **I** p206
Hall, P.S. Dual polarisation antenna arrays with sequentiallly rotated feeding **H** p465
Halsall, F., and Ahmad, R. see Ahmad, R.
Hamada, M., Yamamoto, E., Suda, K., Nogiwa, S., and Oki, T. see Yamamoto, E.
Hamada, S., and Nakaoka, M. Family of saturable reactor assisted soft-switching PWM DC–DC convertors **B** p395
Hamada, S., and Nakaoka, M. Steady-state analysis and performance of a saturable reactor assisted soft-switching DC–DC convertor **B** p281
Hamilton, L.R., Wandzura, S.M., Thorington, C.B., and Turley, R.S. see Wandzura, S.M.
Hamilton, R.J., Pringle, R.D., and Grant, P.M. Syntactic techniques for pattern recognition on sampled data signals **E** p156
Hamlaoui, M.N., and Spooner, E. Slotless armature DC machines with multiplex connection **B** p175
Hamoud, O. Correspondence: Unbalance and harmonic studies for the channel tunnel railway system **B** p418
Handley, P.G., and Boys, J.T. see Boys, J.T.
Handley, P.G., and Boys, J.T. Practical real-time PWM modulators: an assessment **B** p96
Handley, P.G., and Boys, J.T. Resolution corrected modulation: the practical realisation of ideal PWM waveforms **B** p402
Hannah, J.M., and Hudson, S. see Hudson, S.
Hansen, R.C., and Kramer, E. Correction to 'short-pulse excitation of reflector antennas' **H** p119
Hanzo, L., Salami, R., Steele, R., and Fortune, P.M. Transmission of digitally encoded speech at 1.2 Kbaud for PCN **I** p437
Hapiot, J.C., Roboam, X., Andrieux, C., and De Fornel, B. see Roboam, X.
Happel, L.P., and Jayasumana, A.P. Performance of a RISC machine with two level caches **E** p221
Hardaker, P.J., Fletcher, P.N., Auchterlonie, L.J., and Holt, A.R. see Fletcher, P.N.
Hari, L., Nanda, J., Kothari, M.L., and Henry, J. see Nanda, J.
Hari, L., Nanda, J., and Kothari, M.L. see Nanda, J.
Hariri, S., Esonu, M.O., Al-Khalili, A.J., and Al-Khalili, D. see Esonu, M.O.
Harmuth, H.F., and Mohamed, N.J. Large-current radiators **H** p358
Harn, L., and Kiesler, T. see Kiesler, T.
Harn, L., and Lin, H.-Y. Integration of user authentication and access control **E** p139
Harrington, R.F., Kabalan, K.Y., and El-Hajj, A. see Kabalan, K.Y.
Harrison, C.G.M., Jones, P.L., and King, D. VLSI project management in an undergraduate course **G** p167
Harrison, I., Munu, M., Wilkin, D., and Woolfson, M.S. see Munu, M.
Harrison, P.G., and Naraghi, F. Fixed point model for adaptive token passing bus protocol **E** p50
Harry, J.E., and Yahya, A.A. Conditions for coalescence of multiple electric discharges **A** p210
Harth, W., and Claassen, M. see Claassen, M.
Hasan, A.S., Krishnaparandhama, T., and Howaidi, A.M. Load flow analysis by G–S reduction and restoration method **C** p383
Hasan, M.A., and Bhargava, V.K. Division and bit-serial multiplication over $GF(q^m)$ **E** p230
Hassan, M.F., Sultan, M.A., and Attia, M.S. Fault detection in large-scale stochastic dynamic systems **D** p119
Hassani, H.R., and Mirshekar-Syahkal, D. Analysis of triangular patch antennas including radome effects **H** p251
Hatano, H. Radiation hardened high performance CMOS VLSI circuit designs **G** p287
Hatzopoulos, A.A., and Kontoleon, J.M. Fault diagnosis in large analogue circuits based on hybrid decomposition **G** p311
Hausien, H.H., and Martin, J.D. see Martin, J.D.
Hawken, R.E., Yu, J., and Sandler, M.B. see Yu, J.
Haykin, S., Reilly, J.P., Kezys, V., and Vertatschitsch, E. Some aspects of array signal processing **F** p1
Haykin, S., Zhang, Q.T, and Wong, K.M. see Zhang, Q.T
Haykin, S., Zhang, Q.T., and Wong, K.M. see Zhang, Q.T.
Hedelin, P., and Hagen, R. see Hagen, R.
Heffernan, W.J.B., and Evans, P.D. Comparative assessment of zero voltage switched off-line power convertor topologies **B** p71
Heimala, P., Aarnio, J., and Stuns, I. see Aarnio, J.
Helszajn, J. Eigenvalue description of the quarter wave plate **H** p110
Helszajn, J., and Nisbet, W.T. Complex gyrator circuit of junction circulators using weakly magnetised ring resonators **H** p319
Henderson, D., Roddie, A.G., and Smith, A.J.A. Recent developments in the calibration of fast sampling oscilloscopes **A** p254
Henkel, W., and Keller, P. Probability of frame synchronisation failure for binary and complex-valued sequences **I** p29
Henry, J., Nanda, J., Bijwe, P.R., and Bapi Raju, V. see Nanda, J.
Henry, J., Nanda, J., Hari, L., and Kothari, M.L. see Nanda, J.
Herdeg, W.F., Wendel, H., and Röde, B. Novel type of scattering centre in horizontally polarised bistatic edge scattering **H** p113
Hession, P.J., and Bonwick, W.J. see Bonwick, W.J.
Hicks, J.B., and Laughton, M.A. Tokamak poloidal field power supplies **C** p166
Hicks, P.J., Srisuchinwong, B., Tsalides, Ph., York, T.A., and Thanailakis, A. see Srisuchinwong, B.
Hill, A.J., Bridge, J.P., and Ladbrooke, P.H. see Bridge, J.P.
Hill, M., Cantoni, A., and Moors, T. Asynchronous transfer mode receiver **E** p401
Himonas, S.D. Adaptive censored greatest-of CFAR detection **F** p247
Hirayama, K., Koshiba, M., Saitoh, H., and Eguchi, M. see Koshiba, M.
Hjipieris, G., and Potter, C.M. see Potter, C.M.
Ho, C.-S. KBIF: a frame system capable of performing inexact reasoning involving various inexactness factors **E** p280
Ho, H.-J., Chang, Y.-J., and Wu, J.-L.C. see Chang, Y.-J.
Ho, J.-C., Yang, J.-F., and Kaveh, M. Parallel adaptive rooting algorithm for general frequency estimation and direction finding **F** p43
Ho, K.-L., and Hsu, Y.-Y. see Hsu, Y.-Y.
Ho, S.-J., and Lin, C.-A. see Lin, C.-A.
Ho, T.Q., Chen, Y., and Simpson, T.L. see Chen, Y.
Ho, T.Q., and Beker, B. Asymmetric microstrip lines on anisotropic substrates with material axes inclined in the transverse plane **H** p421
Hobson, R.F., Hoskin, J.D., Simmons, J.L., and Spilsbury, R.W. SAM-I: a prototype machine for dynamic, array-oriented programming languages **E** p335
Hoile, G.A., and Reader, H.C. Nonlinear MOSFET model for the design of RF power amplifiers **G** p574
Holburn, D.M., Moore, D.F., Nockolds, C.E., and Rosolen, G.C. see Moore, D.F.
Holden, G.J., and Wyatt, L.R. see Wyatt, L.R.
Holden, G.J., and Wyatt, L.R. Extraction of sea state in shallow water using HF radar **F** p175
Holland, O.E., and Snaith, M.A. Neural control of locomotion in a quadrupedal robot **F** p431
Holmes, P.G., Patterson, E.B., and Morley, D. see Patterson, E.B.
Holmes, P.G., and Salama, M.H. see Salama, M.H.
Holt, A.G.J., and Gudvangen, S. see Gudvangen, S.
Holt, A.R., Fletcher, P.N., Hardaker, P.J., and Auchterlonie, L.J. see Fletcher, P.N.
Hong, Y.Y. Enhanced Newton optimal power flow approach: experiences in Taiwan power system **C** p205
Hope, G.S., Kuloor, S., and Malik, O.P. see Kuloor, S.
Hope, G.S., Malik, O.P., Chen, G.P., Qin, Y.H., and Xu, G.Y. see Malik, O.P.
Hori, N., Cormier, R., and Kanai, K. On matched pole–zero discrete-time models **D** p273
Horno, M., Martel, J., and Boix, R.R. see Martel, J.
Hoskin, J.D., Hobson, R.F., Simmons, J.L., and Spilsbury, R.W. see Hobson, R.F.
Hosticka, B.J., Hahn, H., and Timmermann, D. see Hahn, H.
Houghton, A.W., and Brennan, P.V. Phased array control using phase-locked-loop phase shifters **H** p31
Houle, J.-L., and Fabre, A. see Fabre, A.
Howaidi, A.M., Hasan, A.S., and Krishnaparandhama, T. see Hasan, A.S.
Howard, R., Young, D.J., Lo, K.L., McDonald, J.R., and Rye, J. see Young, D.J.
Howes, R., Redman-White, W., Nichols, K.G., Murray, S.J., and Mole, P.J. Silicon-on-sapphire MOSFET model for analogue circuit simulation **G** p33
Hoyle, B.S., Dickin, F.J., Hunt, A, Huang, S.M., Ilyas, O., Lenn, C., Waterfall, R.C., Williams, R.A., Xie, C.G., and Beck, M.S. see Dickin, F.J.
Hoyle, B.S., Xie, C.G., Huang, S.M., Thorn, R., Lenn, C., Snowden, D., and Beck, M.S. see Xie, C.G.
Hsiao, P.-Y., and Yan, J.-T. Designing a complementary design rule checker based on a binary balanced quad list quad tree **E** p311
Hsu, Y.-Y., and Ho, K.-L. Fuzzy expert systems: an application to short-term load forecasting **C** p471
Hu, X., Yee, H., and Ng, T.S. Discrete time system stability analysis using polynomial arrays **D** p395
Huang, J., and Munro, N. Intelligent advisory system for achieving diagonal dominance **D** p41
Huang, J.-H., and Kleinrock, L. Throughput analysis and protocol design for CSMA and BTMA protocols under noisy environments **I** p289
Huang, K.-M., and Yang, Y.-P. see Yang, Y.-P.
Huang, S.M., Dickin, F.J., Hoyle, B.S., Hunt, A, Ilyas, O., Lenn, C., Waterfall, R.C., Williams, R.A., Xie, C.G., and Beck, M.S. see Dickin, F.J.
Huang, S.M., Xie, C.G., Hoyle, B.S., Thorn, R., Lenn, C., Snowden, D., and Beck, M.S. see Xie, C.G.
Huang, S.M., Xie, C.G., Thorn, R., Snowden, D., and Beck, M.S. Design of sensor electronics for electrical capacitance tomography **G** p83
Huang, Y., Lancaster, M.J., Wu, Z., and Maclean, T.S.M. see Lancaster, M.J.
Huber, L., Borojević, D., and Burány, N. Analysis, design and implementation of the space-vector modulator for forced-commutated cycloconvertors **B** p103
Hudson, S., and Hannah, J.M. Structured knowledge manipulation system for real-time engineering applications **E** p59
Huertas, J.L., Avedillo, M.J., and Quintana, J.M. see Avedillo, M.J.
Huertas, J.L., Linares-Barranco, B., Rodríguez-Vázquez, A., and Sánchez-Sinencio, E. see Linares-Barranco, B.
Hughes, R.C., Allen, N.L., Boutlendj, M., Lightfoot, H.A., and Neville, R.B. see Allen, N.L.
Hui, S.Y.R., and Christopoulos, C. Discrete transform technique for solving nonlinear circuits and equations **A** p321
Hunt, A, Dickin, F.J., Hoyle, B.S., Huang, S.M., Ilyas, O., Lenn, C., Waterfall, R.C., Williams, R.A., Xie, C.G., and Beck, M.S. see Dickin, F.J.
Hunt, K.J. Polynomial optimisation of discrete-time multivariable regulators **D** p190
Hurley, W.G., Wilcox, D.J., McHale, T.P., and Conlon, M. see Wilcox, D.J.
Hwang, C., Guo, T.-Y., Shieh, L.-S., and Chen, C.-H. see Guo, T.-Y.
Hwang, C.L. Design of servocontroller via the sliding mode technique **D** p439
Hwang, H.-K., Lee, L.-S., and Chen, S.-H. see Lee, L.-S.
Hwang, Jen-Sheng, and Wu, Chung-Yu New fast fixed-delay sizing algorithm for high-performance CMOS combinational logic circuits and its applications **E** p379
Hwu, J.-G., and Chang-Liao, K.-S. see Chang-Liao, K.-S.

I

Ibrahim, M.M., El-Maghraby, M.H., and Thejel, R.H. see El-Maghraby, M.H.
Ikegaya, M., Yamauchi, J., and Nakano, H. see Yamauchi, J.

Ilyas, O., Dickin, F.J., Hoyle, B.S., Hunt, A, Huang, S.M., Lenn, C., Waterfall, R.C., Williams, R.A., Xie, C.G., and Beck, M.S. see Dickin, F.J.
Inderjit, ., and Sachidananda, M. Rigorous analysis of a groove guide **H** p449
Iqbal, M.S., and Poon, F.S.F. see Poon, F.S.F.
Iqbal, M.S., and Poon, F.S.F. Packet level access control scheme for internetwork security **I** p165
Ireton, M.A., Li, X., and Xydeas, C.S. see Li, X.
Irving, M.R., Chebbo, A.M., and Sterling, M.J.H. see Chebbo, A.M.
Isernia, T., Leone, G., and Pierri, R. New approach to antenna testing from near field phaseless data: the cylindrical scanning **H** p363
Ittipiboon, A., Bhattacharyya, A.K., and Antar, Y.M.M. see Bhattacharyya, A.K.
Iuculano, G., Catelani, M.A., Mirri, D., Filicori, F., and Menchetti, A. see Catelani, M.A.

J

Jørgensen, J.H., Dall, J., Christensen, E.L., and Madsen, S.N. see Dall, J.
Jackson, R.D., and Wijesundera, D.S. see Wijesundera, D.S.
Jacobsen, G., and Emura, K. Performance of CPFSK systems with tight IF filtering and optimised delay time **J** p158
Jain, P.K., Sinha, A.K., Verma, R., Gupta, R.K., Kumar, L., Joshi, S.N., and Basu, B.N. see Sinha, A.K.
Jalaleddine, S.M.S., and Johnson, L.G. Associative memory integrated circuit based on neural mutual inhibition **G** p445
James, R.E., and Su, Q. see Su, Q.
Jana, A.K., Dutta Gupta, P.B., and Durga Prasad, G. Hybrid method to determine bus voltage and angle for line outage contingency evaluation **C** p177
Janssen, J.H.H., Ackermann, B., Sottek, R., and van Steen, R.I. see Ackermann, B.
Jarry, B., Madrangeas, B., Guillon, P., Larroque, J., Theron, B., and Parise, D. see Madrangeas, B.
Jayasumana, A.P., and Happel, L.P. see Happel, L.P.
Jen, C.-W., and Lee, C.L. see Lee, C.L.
Jen, C.-W., and Liu, C.-M. see Liu, C.-M.
Jen, Y., and Lee, C. Robust speed control of a pump-controlled motor system **D** p503
Jenkins, S., Warham, A.G.P., and Clarke, R.N. Use of open-ended coaxial line sensor with a laminar or liquid dielectric backed by a conducting plane **H** p179
Jian, Huang, Zejia, Jiang, Jihui, Yu, and Bangding, Tau Application of a modified $H-\psi$ method in three-dimensional eddy-current problems **A** p107
Jiang, J., and Jones, S. Word-based dynamic algorithms for data compression **I** p582
Jiang, Ziping, and McCall, M. Phase-locking phenomena in coupled waveguide semiconductor lasers **J** p88
Jihui, Yu, Jian, Huang, Zejia, Jiang, and Bangding, Tau see Jian, Huang
Jin, J.-M., Volakis, J.L., and Liepa, V.V. Fictitious absorber for truncating finite element meshes in scattering **H** p472
Jin, W., and Culshaw, B. Signal-feedback induced intensity modulation in a fibre optic gyro system **J** p318
Joeressen, O., Oerder, M., Serra, R., and Meyr, H. DIRECS: system design of a 100 Mbit/s digital receiver **G** p222
Johannessen, A.B., Prasad, R., Weyland, N.B.J., and Bons, J.H. Coding efficiency of multiring differential chain coding **I** p224
Johannet, P., Ahmad, A., and Auriol, Ph. see Ahmad, A.
Johnson, C.M., and Palmer, P.R. Influence of gate drive and anode circuit conditions on the turn-off performance of GTO thyristors **B** p62
Johnson, L.G., and Jalaleddine, S.M.S. see Jalaleddine, S.M.S.
Johnson, R.H., Green, J.L., Robinson, M.P., Preece, A.W., and Clarke, R.N. Resonant open ended coaxial line sensor for measuring complex permittivity **A** p261
Jones, D.I., Ruano, A.E.B., and Fleming, P.J. see Ruano, A.E.B.
Jones, E.V., and Bi, G. see Bi, G.
Jones, N.B., and Loudon, G.H. Classification techniques for the extraction of nonperiodic transients from noise: an application in electromyography **A** p74
Jones, O.C. UK electrical standards: an overview **A** p214
Jones, P.L. The UK ECAD initiative 1986–1991: an appraisal **G** p143
Jones, P.L., Harrison, C.G.M., and King, D. see Harrison, C.G.M.
Jones, R.C., and Constantinou, C.C. see Constantinou, C.C.
Jones, S. 100 Mbit/s adaptive data compressor design using selectively shiftable content-addressable memory **G** p498
Jones, S., and Jiang, J. see Jiang, J.
Jones, S., and Spray, A. see Spray, A.
Joshi, S.N., Sinha, A.K., Verma, R., Gupta, R.K., Kumar, L., Jain, P.K., and Basu, B.N. see Sinha, A.K.
Joshi, S.N., and Srivastava, V. see Srivastava, V.
Jou, I.C., Ju, R.H., and Tsay, M.K. see Ju, R.H.
Ju, R.H., Jou, I.C., and Tsay, M.K. Global study on data compression techniques for digital Chinese character patterns **E** p1
Jun, Lu, Guoqing, Yang, and Songcan, Chen see Guoqing, Yang
Jweiles, Z.A., Cooper, C.B., and Khan, G.A. see Cooper, C.B.

K

Kabalan, K.Y., El-Hajj, A., and Harrington, R.F. Characteristic modes of a slot in a conducting cylinder and their use for penetration and scattering: TM case **H** p287
Kabalan, K.Y., El-Hajj, A., and Yehia, M. see El-Hajj, A.
Kabir, S.M.F., Auckland, D.W., and Varlow, B.R. see Auckland, D.W.
Kagan, N., and Ter-Gazarian, A.G. see Ter-Gazarian, A.G.
Kajihara, S., Rubio, A., and Kinoshita, K. see Rubio, A.
Kamala, R., and Kudalkar, V. Propagation characteristics of graded-index elliptic-core fibres **J** p348
Kambhampati, C., Tham, M.T., Montague, G.A., and Morris, A.J. Optimising control of fermentation processes **D** p60
Kanai, K., Hori, N., and Cormier, R. see Hori, N.
Kanellakis, A., Tzafestas, S., and Theodorou, N. see Tzafestas, S.
Kang, S.B., and Ngan, K.N. see Ngan, K.N.
Kang, S.M., Morikuni, J.J., and Gao, D.S. see Morikuni, J.J.
Kang, W.-J., and Lee, J.-H. see Lee, J.-H.
Kao, M.-S., Lee, Y.-H., Wu, J., and Tsao, H.-W. see Lee, Y.-H.
Kaplan, B.Z., and Rabinovici, R. see Rabinovici, R.
Kaplan, G., and Shamai, S. On the achievable information rates of DPSK **I** p311
Karady, G.G. Principles of fault limitation by a resonant LC circuit **C** p1
Kaveh, M., Ho, J.-C., and Yang, J.-F. see Ho, J.-C.
Kazimierczuk, M.K. Synthesis of phase-modulated resonant DC/AC inverters and DC/DC convertors **B** p387
Kazimierczuk, M.K., and Czarkowski, D. see Czarkowski, D.
Kazimierczuk, M.K., and Szaraniec, W. Analysis of a Class E rectifier with a series capacitor **G** p269
Kazimierczuk, M.K., and Szaraniec, W. Class-D zero-voltage-switching inverter with only one shunt capacitor **B** p449
Kearley, M.Q., Kirkby, C.J.G., Goodwin, M.J., Moseley, A.J., Robbins, D.J., and Thompson, J. see Kirkby, C.J.G.
Kegel, A., Misser, H.S., and Prasad, R. see Misser, H.S.
Keller, P., and Henkel, W. see Henkel, W.
Kelly, R.G. Students' experiences of a first year engineering course **A** p65
Kemp, C.J., and Cronin, L.B. see Cronin, L.B.
Kendall, P.C., Benson, T.M., Matin, M.A., and Stern, M.S. see Benson, T.M.
Kendall, P.C., Benson, T.M., and Bozeat, R.J. see Benson, T.M.
Kendall, P.C., Burke, S.V., Ritchie, S., Robertson, M.J., and Robson, P.N. see Burke, S.V.
Kenington, P.B. Efficiency of feedforward amplifiers **G** p591
Kenington, P.B., and Wilkinson, R.J. see Wilkinson, R.J.
Kennedy, R.A., and Pulford, G.W. see Pulford, G.W.
Keyhani, A., and Moon, S.I. Maximum likelihood estimation of synchronous machine parameters and study of noise effect from DC flux decay data **C** p76
Kezys, V., Haykin, S., Reilly, J.P., and Vertatschitsch, E. see Haykin, S.
Khan, G.A., Cooper, C.B., and Jweiles, Z.A. see Cooper, C.B.
Khuwaja, G.A., and Green, D.H. see Green, D.H.
Kiely, P.A., Taylor, G.W., Docter, D.P., Claisse, P.R., Vang, T., Evaldsson, P.A., Sargood, S.K., Daryanani, S., Cooke, P., and Brown-Goebeler, K.F. Demonstration of a smart pixel using DOES device technology **J** p208
Kiesler, T., and Harn, L. Cryptographic master-key-generation scheme and its application to public key distribution **E** p203
Kildal, P.-S., and Moldsvor, A. see Moldsvor, A.
Kildal, P.-S., and Zieniutycz, W. see Zieniutycz, W.
Kim, K.-B., Song, J.-H., Yoon, T.-W., Kim, K.-H., and Youn, M.-J. see Song, J.-H.
Kim, K.-H., Song, J.-H., Yoon, T.-W., Kim, K.-B., and Youn, M.-J. see Song, J.-H.
Kim, S.Y., Lee, J.M., and Ra, J.W. see Lee, J.M.
Kimura, T., Suto, K., and Nishizawa, J. see Suto, K.
King, D., Harrison, C.G.M., and Jones, P.L. see Harrison, C.G.M.
Kinoshita, K., Rubio, A., and Kajihara, S. see Rubio, A.
Kirkby, C.J.G., Goodwin, M.J., Moseley, A.J., Robbins, D.J., Kearley, M.Q., and Thompson, J. Low-voltage InGaAs/InP multiple-quantum-well reflective Fabry–Perot modulators for optical communications at microwave frequencies **J** p249
Kleinrock, L., and Huang, J.-H. see Huang, J.-H.
Ko, C.C. Resolution of coherent sources in power inversion arrays with a fast zero tracking algorithm **I** p45
Ko, C.C., Balabhaskar, G., and Chin, F. On the stationary points of the output power versus response zero performance surface in power inversion arrays **F** p199
Ko, C.C., Wen, J., and Chin, F. Adaptive null-steering algorithm for separating multiple directional sources in linear power-inversion arrays **H** p477
Kokkos, A., O'Reilly, J.J., Popplewell, A., and Williams, S. Evaluation of a class of error control line codes: an error performance perspective **I** p128
Kolundžija, B.M., and Popović, B.D. Entire domain Galerkin method for analysis of generalised wire antennas and scatterers **H** p17
Kontoleon, J.M., and Hatzopoulos, A.A. see Hatzopoulos, A.A.
Kopilovich, L.E. New approach to constructing two-dimensional aperture synthesis systems **F** p365
Koshiba, M., Saitoh, H., Eguchi, M., and Hirayama, K. Simple scalar finite element approach to optical rib waveguides **J** p166
Kothari, M.L., Nanda, J., Hari, L., and Henry, J. see Nanda, J.
Kothari, M.L., Nanda, J., and Hari, L. see Nanda, J.
Koumboulis, F.N., and Paraskevopoulos, P.N. On the pole assignment of generalised state space systems via state feedback **D** p106
Kousik, G.S., Savio, A.D., Bhattacharya, P.K., and Nandakumar, R.P. see Savio, A.D.
Kouvaritakis, B., Rossiter, J.A., and Chang, A.O.T. Gain/phase decomposition and generalised predictive control of scalar systems **D** p97
Kouvaritakis, B., Rossiter, J.A., and Chang, A.O.T. Stable generalised predictive control: an algorithm with guaranteed stability **D** p349
Kouvaritakis, B., and Rossiter, J.A. Use of bicausal weighting sequences in least squares identification of open-loop unstable dynamic systems **D** p328
Kramer, E., and Hansen, R.C. see Hansen, R.C.
Krauss, T., and Laybourn, P.J.R. Very low threshold current operation of semiconductor ring lasers **J** p383
Krishnaparandhama, T., Hasan, A.S., and Howaidi, A.M. see Hasan, A.S.
Kuan, K.K., and Warwick, K. Real-time expert system for fault location on high voltage underground distribution cables **C** p235
Kudalkar, V., and Kamala, R. see Kamala, R.
Kuloor, S., Hope, G.S., and Malik, O.P. Environmentally constrained unit commitment **C** p122
Kumar, L., Sinha, A.K., Verma, R., Gupta, R.K., Joshi, S.N., Jain, P.K., and Basu, B.N. see Sinha, A.K.
Kuo, J.B., Chow, H.-C., and Feng, W.-S. see Chow, H.-C.
Kuo, S.-Y., and Fuchs, W.K. Modelling and algorithms for spare allocation in reconfigurable VLSI **E** p323
Kurzyn, M.S. Two-level state estimation for large power system. Part 1: Algorithms and Part 2: Computational experience **C** p175
Kuzuoğlu, M., and Önder, M. see Önder, M.
Kwon, Y.-S., Pickup, I.E.D., and Russell, A.P. see Pickup, I.E.D.

L

Ladbrooke, P.H., Bridge, J.P., and Hill, A.J. see Bridge, J.P.
Ladouceur, F., Marcuse, D., and Love, J.D. see Marcuse, D.
Lai, F., Lee, H.-C., and Parng, T.-M. see Lee, H.-C.
Lai, H., Chen, Z., and Chen, X. see Chen, Z.
Laih, C.S., and Chang, C.C. see Chang, C.C.
Lakhtakia, A., and Weiglhofer, W.S. Scattering by an electrically small bianisotropic sphere in a gyroelectromagnetic uniaxial medium **H** p217
Lakshmi, S.R., Tripathy, S.C., Rao, K.S.P., and Balasubramanian, R. Production costing using mixed-radix and Winograd Fourier transforms **C** p536
Lam, K.P. Time-range reasoning for microprocessor systems diagnosis: a probabilistic extension **E** p308
Lam, V.M.T., Poole, C.R., and Yip, P.C.L. Exact noise figure of a noisy two-port with feedback **G** p473
Lamb, J.W. Beam-mode expansion applied to focal-region fields **H** p513
Lambkin, P.M., Montrosset, I., and Shore, K.A. Guided modes in nonlinear periodic structures **J** p173
Lanari, R., Franceschetti, G., Pascazio, V., and Schirinzi, G. see Franceschetti, G.
Lancaster, M.J., Maclean, T.S.M., Wu, Z., Porch, A., Woodall, P., and Alford, N.McN. Superconducting microwave resonators **H** p149
Lancaster, M.J., Wu, Z., Maclean, T.S.M., and

Huang, Y. Supercooled and superconducting small-loop and dipole antennas **H** p264
Lane, P.M., Darwazeh, I., Marnane, W.P., Moreira, P., Watkins, L.R., Capstick, M.H., and O'Reilly, J.J. see Darwazeh, I.
Lane, P.M., Watkins, L.R., and O'Reilly, J.J. Distributed microwave filter realisation providing close to optimum performance for multigigabit optical communications **J** p280
Langley, R.J., Lee, C.K., and Parker, E.A. see Lee, C.K.
Lara-Barron, M.M., and Lockhart, G.B. Packet-based embedded encoding for transmission of low-bit-rate-encoded speech in packet networks **I** p482
Larroque, J., Madrangeas, B., Jarry, B., Guillon, P., Theron, B., and Parise, D. see Madrangeas, B.
Larsen, T. Extended source and load operating noise temperatures of nonlinear systems **H** p121
Larsen, T. Noise temperatures of multiresponse systems **H** p309
Laska, B., and Winternheimer, S. see Winternheimer, S.
Lassen, H.E., Pan, X., Olesen, H., and Tromborg, B. see Pan, X.
Last, J.D., Farnworth, R.G., and Searle, M.D. Effect of skywave interference on the coverage of Loran-C **F** p306
Latifi, S. Identification of operational subcubes in unreliable hypercubes **E** p117
Lau, B.S., and Wong, K.P. see Wong, K.P.
Laughton, M.A., and Hicks, J.B. see Hicks, J.B.
Lawandy, N.M., Driscoll, T.J., and Adler, C.L. Test of directional photoionisation models of second harmonic generation in optical fibres **J** p133
Lawson, S.S., and Wicks, A. Design of efficient digital filters satisfying arbitrary loss and delay specifications **G** p611
Laybourn, P.J.R., Zhou, Y., Magill, J.V., and De La Rue, R.M. see Zhou, Y.
Laybourn, P.J.R., and Krauss, T. see Krauss, T.
Le Doeuff, R., Machmoum, M., Sargos, F.M., and Cherkaoui, M. see Machmoum, M.
Lecuru, I., Aboudou, A., Vilcot, J.P., Danneville, F., Decoster, D., Delhaye, E., Boissenot, P., Varin, C., and Deschamps, F. see Aboudou, A.
Ledwich, G., and Doulai, P. see Doulai, P.
Lee, C., and Jen, Y. see Jen, Y.
Lee, C.K., Langley, R.J., and Parker, E.A. Compound reflector antennas **H** p135
Lee, C.L., and Jen, C.-W. Bit-sliced median filter design based on majority gate **G** p63
Lee, H.-C., Lai, F., and Parng, T.-M. MARS: a RISC based multiple function units Lisp machine **E** p410
Lee, J., and Shiozaki, A. Decoding delays of orchard codes **I** p413
Lee, J.-H., and Kang, W.-J. Designing filters for polyphase filter banks **G** p363
Lee, J.M., Kim, S.Y., and Ra, J.W. Filtering effects on permittivity profiles reconstructed by a spectral inverse scattering technique **H** p507
Lee, K.K., Chang, C.S., and Chan, T.T. see Chang, C.S.
Lee, L.-S., Hwang, H.-K., and Chen, S.-H. Asymmetric modulation indices in full/partial response multi-H phase-coded modulations with different phase pulse functions **I** p508
Lee, T.-S. Fast implementation of root-form eigen-based methods for detecting closely spaced sources **F** p288
Lee, T.S., and Perng, M.H. see Perng, M.H.
Lee, W.-S.R. Performance analysis of slotted rings with finite buffers **E** p215
Lee, Y.-H., Wu, J., Kao, M.-S., and Tsao, H.-W. Performance analysis of wavelength division- and subcarrier-multiplexing (WDM-SCM) transmission using fibre Brillouin amplification **J** p272
Leitch, R., and Quek, C. Architecture for integrated process supervision **D** p317
Leite da Silva, A.M., Coelho, J., and Melo, A.C.G. Uncertainty considerations in frequency and duration analysis for large hydrothermal generating systems **C** p277
Leite da Silva, A.M., and Pires de Souza, E.J.S. see Pires de Souza, E.J.S.
Lenn, C., Dickin, F.J., Hoyle, B.S., Hunt, A, Huang, S.M., Ilyas, O., Waterfall, R.C., Williams, R.A., Xie, C.G., and Beck, M.S. see Dickin, F.J.
Lenn, C., Xie, C.G., Huang, S.M., Hoyle, B.S., Thorn, R., Snowden, D., and Beck, M.S. see Xie, C.G.
Leone, G., Bucci, O.M., D'Elia, G., and Pierri, R. see Bucci, O.M.
Leone, G., Isernia, T., and Pierri, R. see Isernia, T.
Leslie, I.M., and Chen, X. see Chen, X.
Leslie, T.C., and Singh, B. Sigma-delta modulators with multibit quantising elements and single-bit feedback **G** p356
Leung, Y.T., Forsyth, A.J., and Ma, S.H. see Forsyth, A.J.
Levanon, N. Analytic comparison of four robust algorithms for post-detection integration **F** p67
Levanon, N., and Ravid, R. see Ravid, R.
Lever, K.V., and Burgess, N. see Burgess, N.
Levy, G.F. Optical fibre ring resonators: analysis of transient response **J** p313
Li, X., Ireton, M.A., and Xydeas, C.S. Detection of the extreme points of closed contours **I** p198
Li, Y.Z., and David, A.K. see David, A.K.
Liang, G., and Wilkes, D.M. An improved Hessian matrix for recursive maximum likelihood ARMA estimation **F** p212
Liaw, C.M., and Tseng, C.W. High-performance speed controller for voltage-source inverter-fed induction motor drives **B** p220
Liepa, V.V., Jin, J.-M., and Volakis, J.L. see Jin, J.-M.
Lightfoot, H.A., Allen, N.L., Boutlendj, M., Hughes, R.C., and Neville, R.B. see Allen, N.L.
Lim, K.W., Low, T.S., Rahman, M.F., and Binns, K.J. see Low, T.S.
Lim, N.K., Dubey, V.K., and Gunawan, E. see Dubey, V.K.
Lin, C.-A., and Ho, S.-J. Controller design for linear multivariable systems with periodic inputs **D** p1
Lin, C.-M., and Tu, M.-H. see Tu, M.-H.
Lin, H.-Y., and Harn, L. see Harn, L.
Lin, J., Amini, Z., and Roberts, P.D. see Amini, Z.
Lin, J., Gionas, I., and Roberts, P.D. Stability of steady-state optimising control systems **D** p481
Lin, K.-J., and Wu, C.-W. Realisation of pipelined mesh algorithms on hypercubes **E** p189
Lin, P-L, Chen, Y-C, and Chang, S see Chen, Y-C
Lin, T.-P., and Liu, J.-C. see Liu, J.-C.
Lin, Y., and Shafai, L. Analysis of biconical microstrip antennas **H** p483
Linares-Barranco, B., Rodríguez-Vázquez, A., Sánchez-Sinencio, E., and Huertas, J.L. Generation, design and tuning of OTA-C high-frequency sinusoidal oscillators **G** p557
Lindell, I.V., Ermutlu, M.E., and Sihvola, A.H. Electrostatic image theory for layered dielectric sphere **H** p186
Linkens, D.A., Mahfouf, M., Asbury, A.J., Gray, W.M., and Peacock, J.E. see Mahfouf, M.
Linkens, D.A., Mahfouf, M., and Abbod, M. Self-adaptive and self-organising control applied to nonlinear multivariable anaesthesia: a comparative model-based study **D** p381
Linnartz, J.-P.M.G. Slotted ALOHA land-mobile radio networks with site diversity **I** p58
Liou, J.J. Semiconductor device physics and modelling. Part 1: Overview of fundamental theories and equations **G** p646
Liou, J.J. Semiconductor device physics and modelling. Part 2: Overview of models and their applications **G** p655
Liou, J.J., and Shakouri, H. see Shakouri, H.
Liou, J.J., and Yuan, J.S. Optically driven photoconductive devices for power switching application. Part II: Thermal modelling including heat sink **G** p350
Lisboa, P.J.G., Binns, K.J., and Al-Din, M.S.N. see Binns, K.J.
Liu, B.-D., Chen, P.-C., Wang, J.-F., and Chen, C.-P. see Chen, P.-C.
Liu, B.D., Tsay, C.S., Chen, C.H., and Fuh, R.L. Novel A/D convertor with median filtering of programmable window length **G** p621
Liu, C.-M., and Jen, C.-W. On the design of VLSI arrays for discrete Fourier transform **G** p541
Liu, C.-Y., and Prasad, R. see Prasad, R.
Liu, G.P. Mean regulators for discrete systems **D** p67
Liu, J.-C., and Lin, T.-P. Recursive Hartley filter — a new efficient digital-prefilter structure **G** p438
Liu, T., and Lombardi, F. On the reduction of the programming cost of soft switches for reconfigurable two-dimensional arrays **E** p262
Lo, K.L., Young, D.J., McDonald, J.R., Howard, R., and Rye, J. see Young, D.J.
Lo, K.L., Zeng, P.L., Marchand, E., and Pinkerton, A. New bad-data detection and identification technique based on rotation of measurement order for sequential state estimation **C** p387
Łobos, T. Fast estimation of symmetrical components in real time **C** p27
Łobos, T., and Cichocki, A. see Cichocki, A.
Lockhart, G.B., and Lara-Barron, M.M. see Lara-Barron, M.M.
Loizou, P.C., and Spanias, A.S. see Spanias, A.S.
Lombardi, F., Shen, Y.-N., and Muzio, J. FFT architecture for WSI with concurrent error detection and fault location **E** p13
Lombardi, F., and Liu, T. see Liu, T.
Lopes, E.P., and Lopes, E.P. see Lopes, E.P.
Lopes, E.P., and Lopes, E.P. Electromagnetic geophysical tomography **F** p27
Lopez Barrio, C., Arechabala, J., Boemo, E.I., Meneses, J., and Moreno, F. see Arechabala, J.
Lord, J.A., Cook, G.G., and Anderson, A.P. Reconstruction of the excitation of an array antenna from the measured near-field intensity using phase retrieval **H** p392
Losana, C., Elia, M., and Neri, F. see Elia, M.
Losi, A., Chiodo, E., Mongelluzzo, R., and Rossi, F. see Chiodo, E.
Lotti, F., Mongatti, G., Alparone, L., Benelli, G., Baronti, S., and Casini, A. see Mongatti, G.
Loudon, G.H., and Jones, N.B. see Jones, N.B.
Lovatt, H.C., and Stephenson, J.M. Influence of number of poles per phase in switched reluctance motors **B** p307
Love, J.D., Marcuse, D., and Ladouceur, F. see Marcuse, D.
Low, T.S., Lim, K.W., Rahman, M.F., and Binns, K.J. Comparison of two control strategies in development of high-torque electronically commutated drive **B** p26
Lowery, A.J. Comparison between two recent large-signal dynamic DFB laser models **J** p402
Lowery, A.J. Transmission-line laser modelling of semiconductor laser amplified optical communications systems **J** p180
Lowery, A.J., Desai, R.A., Christopoulos, C., Naylor, P., Blanshard, J.M.V., and Gregson, K. see Desai, R.A.
Lu, J., Chiang, H.-D., Thorp, J.S., Wang, J.-C., and Aubert, B. see Chiang, H.-D.
Lu, S.-T., Chang, K.-S., Wu, Y.-P., and Chou, C. see Chang, K.-S.
Lu, W., and Fisher, D.G. Multirate adaptive inferential estimation **D** p181
Lu, W.X., Chen, X.H., and Oksman, J. see Chen, X.H.
Lu, Z., and Arora, R.K. see Arora, R.K.
Lucyszyn, S., Magnier, V., Reader, H.C., and Robertson, I.D. Ultrawideband measurement of multiple-port MMICs using nonideal test fixtures and a 2-port ANA **A** p235
Luque, E., Ripoll, A., and Diez, T. Heuristic algorithms for register allocation **E** p73
Luttrell, S.P. Self-supervised adaptive networks **F** p371
Luvison, A., Benedetto, S., Biglieri, E., and Zingarelli, V. see Benedetto, S.
Luy, J.-F., Strohm, K.M., Buechler, J., and Russer, P. Silicon monolithic millimetre-wave integrated circuits **H** p209
Lyberopoulos, G.L., and Sykas, E.D. see Sykas, E.D.
Lynch, A.C., and Clarke, R.N. Open resonators: improvement of confidence in measurement of loss **A** p221
Lysaght, P., Dunlop, J., and Girma, D. see Dunlop, J.

M

Ma, S., Zhou, H., Chen, C.S., and Yuan, J. Decoding complement-closed codes with coordinate-disjoint decomposition **I** p488
Ma, S.H., Forsyth, A.J., and Leung, Y.T. see Forsyth, A.J.
Maamria, K., and Nakamura, T. Simple antenna for circular polarisation **H** p157
MacDonald, S.J., Bodger, P.S., and Elder, P.A. Biological cell alignment for electrofusion **A** p112
Mace, D.A.H., Mudhar, P.S., Singh, J., Fisher, M.A., and Adams, M.J. see Mudhar, P.S.
Macháč, J. Analysis of discontinuities in waveguiding structures by MAB method **H** p351
Machmoum, M., Le Doeuff, R., Sargos, F.M., and Cherkaoui, M. Steady-state analysis of a doubly fed asynchronous machine supplied by a current-controlled cycloconvertor in the rotor **B** p114
Maciejowski, J.M., and Boyle, J.-M. see Boyle, J.-M.
Mack, R.J., Massara, R.E., Standeven, J., Colley, M.J., Green, A.D.P., Monaghan, S., Noakes, P.D., Ritchie, G.J., and Sagar, V.K. see Massara, R.E.
Maclean, T.S.M., Lancaster, M.J., Wu, Z., Porch, A., Woodall, P., and Alford, N.McN. see Lancaster, M.J.
Maclean, T.S.M., Lancaster, M.J., Wu, Z., and Huang, Y. see Lancaster, M.J.
Madrangeas, B., Jarry, B., Guillon, P., Larroque, J., Theron, B., and Parise, D. Three-pole dielectric resonators microwave bandpass active filter **H** p205
Madsen, S.N., Dall, J., Jørgensen, J.H., and Christensen, E.L. see Dall, J.
Magill, J.V., Zhou, Y., Laybourn, P.J.R., and De La Rue, R.M. see Zhou, Y.
Magnier, V., Lucyszyn, S., Reader, H.C., and Robertson, I.D. see Lucyszyn, S.
Magott, J. Performance evaluation of communicating sequential processes (CSP) using Petri nets **E** p237
Mahfouf, M., Linkens, D.A., Asbury, A.J., Gray, W.M., and Peacock, J.E. Generalised predictive control (GPC) in the operating theatre **D** p404
Mahfouf, M., Linkens, D.A., and Abbod, M. see Linkens, D.A.
Malik, O.P. Application of a power system stabiliser and a static VAR controller to a multi-machine power system **C** p300
Malik, O.P., Chen, G.P., Hope, G.S., Qin, Y.H., and Xu, G.Y. Adaptive self-optimising pole shifting control algorithm **D** p429
Malik, O.P., Kuloor, S., and Hope, G.S. see Kuloor, S.
Maloberti, F., Dias, V.F., Palmisano, G., and O'Leary, P. see Dias, V.F.
Maloberti, F., Dias, V.F., and Palmisano, G. see Dias, V.F.
Manenkov, A.B. Reflection of the surface mode from an abrupt-ended dielectric tube waveguide **J** p194
Manenkov, A.B. Reflection of the surface mode from an abruptly ended W-fibre **J** p101
Manias, S., Prasad, A.R., and Ziogas, P.D. see Prasad, A.R.
Manikopoulos, C.N. Neural network approach to DPCM system design for image coding **I** p501
Mannikko, P.D., Courtney, C.C., and Butler, C.M.

Slotted parallel-plate waveguide coupled to a conducting cylinder **H** p193
Maquin, D., Ragot, J., and Sauter, D. see Ragot, J.
Mar, J., and Yuh, H.J. Analysis and simulation of automatic bias reduction circuit in a coherent detector **G** p57
Marchand, E., Lo, K.L., Zeng, P.L., and Pinkerton, A. see Lo, K.L.
Marcuse, D., Ladouceur, F., and Love, J.D. Vector modes of D-shaped fibres **J** p117
Maringelli, M., Amato, G., Benedetto, G., Boarino, L., and Spagnolo, R. see Amato, G.
Markham, K.C. Time-to-go estimation from infrared images **I** p356
Marks, J.A., and Buckley, K.M. Improved rooting method for source localisation **F** p321
Marks II, R.J., Weerasooriya, S., El-Sharkawi, M.A., and Damborg, M. see Weerasooriya, S.
Marnane, W.P., Darwazeh, I., Lane, P.M., Moreira, P., Watkins, L.R., Capstick, M.H., and O'Reilly, J.J. see Darwazeh, I.
Marsden, D.J. Fixed-voltage thyristor convertor rolling-stock transformers to control DC traction motors **B** p209
Marsden, D.J. Variable-voltage diode convertor rolling-stock transformers to control DC traction motors **B** p197
Marshall, S. Application of image contours to three aspects of image processing: compression, shape recognition and stereopsis **I** p1
Martínez, M., Bracho, S., Villar, E., Sánchez, P., and Allende, M.A. see Bracho, S.
Martel, J., Boix, R.R., and Horno, M. Analysis of broadside coupled microstrip open-end discontinuities **H** p239
Martin, J.D., and Hausien, H.H. PPM versus PCM for optical local-area networks **I** p241
Martin, J.D., and Shepherd, P.R. see Shepherd, P.R.
Martin, J.M., and Rodriguez, E. see Rodriguez, E.
Martin, P.A., Greenwood, A.R., and Goodyear, C.C. see Greenwood, A.R.
Massara, R.E., Standeven, J., Colley, M.J., Green, A.D.P., Mack, R.J., Monaghan, S., Noakes, P.D., Ritchie, G.J., and Sagar, V.K. VLSI design: developments in teaching and research at the University of Essex **G** p171
Massara, R.E., and Younis, A.T. see Younis, A.T.
Mathew, G., Narasimhan, S.V., and Shivaprasad, A.P. Computationally simple ADPCM based on exponential power estimator **I** p53
Matin, M.A., Benson, T.M., Kendall, P.C., and Stern, M.S. see Benson, T.M.
Mavor, J., and Carruthers, C. see Carruthers, C.
Mazinani, A., Ahmadi, M., Shridhar, M., and Ramachandran, V. see Ahmadi, M.
Mazumder, P. Layout optimisation for yield enhancement in on-chip-VLSI/WSI parallel processing **E** p21
McCall, M., and Jiang, Ziping see Jiang, Ziping
McCanny, J.V., and McQuillan, S.E. see McQuillan, S.E.
McCanny, J.V., and Woods, R.F. see Woods, R.F.
McDonald, J.R., Young, D.J., Lo, K.L., Howard, R., and Rye, J. see Young, D.J.
McDonnell, J.T.E., Elliott, J.A., Cubiss, C., and Grant, P.M. see Elliott, J.A.
McGee, W.F., and Zhang, G. see Zhang, G.
McGowan, R., and Mizan, M. see Mizan, M.
McHale, T.P., Wilcox, D.J., Hurley, W.G., and Conlon, M. see Wilcox, D.J.
McHale, T.P., and Wilcox, D.J. see Wilcox, D.J.
McMichael, D.W. BARTIN: minimising Bayes risk and incorporating priors using supervised learning networks **F** p413
McQuillan, S.E., and McCanny, J.V. VLSI module for high-performance multiply, square root and divide **E** p505
McWhirter, J.G. Algorithmic engineering in adaptive signal processing **F** p226
Medeiros, C.R., Fyath, R.S., and O'Reilly, J.J. Multigigabit optically preamplified receiver designs with improved timing tolerance **J** p143
Medina, A., and Arrillaga, J. Simulation of multilimb power transformers in the harmonic domain **C** p269
Medley, J.C., Ridler, N.M., Baden Fuller, A.J., and Runham, M. see Ridler, N.M.
Mellitt, B., Brown, J.C., and Allan, J. see Brown, J.C.
Melo, A.C.G., Leite da Silva, A.M., and Coelho, J. see Leite da Silva, A.M.
Menchetti, A., Catelani, M.A., Iuculano, G., Mirri, D., and Filicori, F. see Catelani, M.A.
Meneses, J., Arechabala, J., Boemo, E.I., Moreno, F., and Lopez Barrio, C. see Arechabala, J.
Menzi, U., Dąbrowski, A., and Moschytz, G.S. see Dąbrowski, A.
Merchant, R.W., and Gibbard, M.J. Identification of synchronous machine parameters from standstill tests using recursive estimation with the bilinear operator **C** p157
Metz, M., Roux, J., Ben Doua, S., Arches, J.P., and Foch, H. New ZVS-PWM inverter switching limits and operating area **B** p86
Meyr, H., Joeressen, O., Oerder, M., and Serra, R. see Joeressen, O.
Michalski, K.A., Di, X., and Glisson, A.W. see Di, X.
Michell, J., Ruiz, G., and Burón, A. see Ruiz, G.
Michielssen, E., Ranjithan, S., and Mittra, R. Optimal multilayer filter design using real coded genetic algorithms **J** p413
Middelhoek, M.G. Improved objective function for device model parameter extraction **G** p126
Midwinter, J.E. Photonics in switching: the next 25 years of optical communications? **J** p1
Miles, R.O., Dupertuis, M.A., Reinhart, F.K., and Brosson, P.M. Gain measurements in InGaAs/InGaAsP multiquantum-well broad-area lasers **J** p33
Miller, J.F., Almaini, A.E.A., and Xu, L. see Almaini, A.E.A.
Miller, S.L. Performance of a coherent optical PSK receiver employing optical amplification **J** p215
Milojević, D.J., and Popović, B.M. Improved algorithm for the deinterleaving of radar pulses **F** p98
Minh Vu, K. Optimal setting for discrete PID controllers **D** p31
Mirri, D., Catelani, M.A., Iuculano, G., Filicori, F., and Menchetti, A. see Catelani, M.A.
Mirshekar-Syahkal, D., and Hassani, H.R. see Hassani, H.R.
Misra, P., and Gu, G. see Gu, G.
Misser, H.S., Kegel, A., and Prasad, R. Monte Carlo simulation of direct sequence spread spectrum for indoor radio communication in a Rician fading channel **I** p620
Mittra, R., Michielssen, E., and Ranjithan, S. see Michielssen, E.
Mizan, M., and McGowan, R. Residual phase noise performance of X-band GaAs FET amplifiers at liquid nitrogen temperature **G** p37
Möhrle, M., Rozenweig, M., Düser, H., and Grützmacher, D. Fundamental characteristics of InGaAs/InGaAsP-MQW-SCH-lasers emitting in 1.3 μm wavelength range **J** p29
Moeneclaey, M., and Wang, J. Multiple hops/symbol fast frequency-hopping spread spectrum multiple access with coding for indoor radio **I** p95
Mohamed, N.J., and Harmuth, H.F. see Harmuth, H.F.
Mohtadi, M.A., and Crisan, O. see Crisan, O.
Mokhtari, H., Nyeck, A., Tosser-Roussey, C., and Tosser-Roussey, A. Finite difference method and Pspice simulation applied to the coaxial cable in a linear temperature gradient **A** p39
Moldsvor, A., and Kildal, P.-S. Systematic approach to control feed scattering and multiple reflections in symmetrical primary-fed reflector antennas **H** p65
Mole, P.J., Howes, R., Redman-White, W., Nichols, K.G., and Murray, S.J. see Howes, R.
Monaghan, S., Massara, R.E., Standeven, J., Colley, M.J., Green, A.D.P., Mack, R.J., Noakes, P.D., Ritchie, G.J., and Sagar, V.K. see Massara, R.E.
Mongatti, G., Alparone, L., Benelli, G., Baronti, S., Lotti, F., and Casini, A. Progressive image transmission by content driven Laplacian pyramid encoding **I** p495
Mongelluzzo, R., Chiodo, E., Losi, A., and Rossi, F. see Chiodo, E.
Mongia, R.K. Theoretical and experimental resonant frequencies of rectangular dielectric resonators **H** p98
Monro, D.M., and Sherlock, B.G. see Sherlock, B.G.
Montague, G.A., Kambhampati, C., Tham, M.T., and Morris, A.J. see Kambhampati, C.
Montoro, C.G., Bermudez, J.C.M., and Schneider, M.C. see Bermudez, J.C.M.
Montrosset, I., Lambkin, P.M., and Shore, K.A. see Lambkin, P.M.
Montrosset, I., and Debernardi, P. see Debernardi, P.
Montrosset, I., and Paradisi, A. see Paradisi, A.
Montuschi, P. Parallel architectures for higher-radix division **E** p101
Montuschi, P., Ciminiera, L., and Valenzano, A. Time characteristics of IEEE 802.4 token bus protocol **E** p81
Moon, S.I., and Keyhani, A. see Keyhani, A.
Moore, D.F., Holburn, D.M., Nockolds, C.E., and Rosolen, G.C. CMOS ring oscillators as teaching tools **G** p199
Moors, T., Hill, M., and Cantoni, A. see Hill, M.
Moraga, C., and Stanković, R.S. see Stanković, R.S.
Moreira, P., Darwazeh, I., Lane, P.M., Marnane, W.P., Watkins, L.R., Capstick, M.H., and O'Reilly, J.J. see Darwazeh, I.
Moreno, F., Arechabala, J., Boemo, E.I., Meneses, J., and Lopez Barrio, C. see Arechabala, J.
Moreno, L., Acosta, L., and Sánchez, J.L. Design of algorithms for spatial-time reduction complexity of dynamic programming **D** p172
Morgan, G.B., and Centeno, A.E. see Centeno, A.E.
Morgan, V.T. Effect of mixed convection on the external thermal resistance of single-core and multicore bundled cables in air **C** p109
Morgan, V.T., and Slaninka, P. see Slaninka, P.
Morikuni, J.J., Gao, D.S., and Kang, S.M. Modelling of optical logic gates for computer simulation **J** p105
Morley, D., Patterson, E.B., and Holmes, P.G. see Patterson, E.B.
Morris, A.J., Kambhampati, C., Tham, M.T., and Montague, G.A. see Kambhampati, C.
Morris, A.S., and Zomaya, A.Y. see Zomaya, A.Y.
Morthier, G., Willems, J., David, K., and Baets, R. see Willems, J.
Moschonas, C.A., Vasilakos, A.V., and Paximadis, C.T. see Vasilakos, A.V.
Moschytz, G.S., Carlosena, A., and Müller, D. see Carlosena, A.
Moschytz, G.S., Dąbrowski, A., and Menzi, U. see Dąbrowski, A.
Moseley, A.J., Kirkby, C.J.G., Goodwin, M.J., Robbins, D.J., Kearley, M.Q., and Thompson, J. see Kirkby, C.J.G.
Mosig, J.R., Bokhari, S.A., and Gardiol, F.E. see Bokhari, S.A.
Mouftah, H.T., and Belkadi, M. see Belkadi, M.
Mowbray, R.S., Pringle, R.D., and Grant, P.M. Increased CDMA system capacity through adaptive cochannel interference regeneration and cancellation **I** p515
Müller, D., Carlosena, A., and Moschytz, G.S. see Carlosena, A.
Mudhar, P.S., Mace, D.A.H., Singh, J., Fisher, M.A., and Adams, M.J. Active optical combiner switch **J** p79
Munro, N., and Huang, J. see Huang, J.
Munshi, S., Roy, C.K., and Biswas, J.R. Computer studies of the performance of transformer windings against chopped impulse voltages **C** p286
Munu, M., Harrison, I., Wilkin, D., and Woolfson, M.S. Comparison of adaptive target-tracking algorithms for phased-array radar **F** p336
Murad, H.A., and Sebakhy, O.A. see Sebakhy, O.A.
Murray, A.F., Tombs, J.N., and Tarassenko, L. see Tombs, J.N.
Murray, S.J., Howes, R., Redman-White, W., Nichols, K.G., and Mole, P.J. see Howes, R.
Murtagh, P., and Tsoi, A.C. Implementation issues of sigmoid function and its derivative for VLSI digital neural networks **E** p207
Murugesan, K., and Balachandran, K. see Balachandran, K.
Muthukrishnan, C.R., and Satyanarayanan, R. see Satyanarayanan, R.
Muzio, J., Lombardi, F., and Shen, Y.-N. see Lombardi, F.
Myers, D.J., Vincent, J.M., and Waite, J.B. see Vincent, J.M.

N

Nahman, J., and Graovac, M. Load modelling for generating capacity reliability evaluation using the frequency and duration method **C** p529
Nair, R.A. Plural hybrid mode multiflare conical horn with reduced cross polarisation and sidelobe levels **H** p385
Nakamura, T., and Maamria, K. see Maamria, K.
Nakano, H., Yamauchi, J., and Ikegaya, M. see Yamauchi, J.
Nakaoka, M., and Hamada, S. see Hamada, S.
Nanda, J., Bijwe, P.R., Henry, J., and Bapi Raju, V. General purpose fast decoupled power flow **C** p87
Nanda, J., Hari, L., Kothari, M.L., and Henry, J. Extremely fast economic load dispatch algorithm through modified co-ordination equations **C** p39
Nanda, J., Hari, L., and Kothari, M.L. Challenging algorithm for optimal reactive power dispatch through classical co-ordination equations **C** p93
Nandakumar, R.P., Savio, A.D., Bhattacharya, P.K., and Kousik, G.S. see Savio, A.D.
Naraghi, F., and Harrison, P.G. see Harrison, P.G.
Narasimhan, S.V., Mathew, G., and Shivaprasad, A.P. see Mathew, G.
Nashashibi, A., Ulaby, F.T., and Sarabandi, K. see Ulaby, F.T.
Navarro, E.A., Such, V., Gimeno, B., and Cruz, J.L. Analysis of *H*-plane waveguide discontinuities with an improved finite-difference time domain algorithm **H** p183
Navarro, E.A., and Such, V. Study of TE and TM modes in waveguides of arbitrary cross-section using an FD-TD formulation **H** p491
Nayar, C.V., Chakravarthy, S.K., and Achuthan, N.R. see Chakravarthy, S.K.
Naylor, P., Desai, R.A., Lowery, A.J., Christopoulos, C., Blanshard, J.M.V., and Gregson, K. see Desai, R.A.
Neri, F., Elia, M., and Losana, C. see Elia, M.
Neudorfer, P., and Chen, X.S. see Chen, X.S.
Neville, R.B., Allen, N.L., Boutlendj, M., Hughes, R.C., and Lightfoot, H.A. see Allen, N.L.
Ng, B.C., and Er, M.H. see Er, M.H.
Ng, B.P. Array shape self-calibration technique for direction finding problems **H** p521
Ng, T.S., Hu, X., and Yee, H. see Hu, X.
Ngan, K.N., and Kang, S.B. 3-D object recognition using fuzzy quaternions **I** p561
Nguyen, T.T. Corona discharge streamer model **C** p31
Nichols, K.G., Howes, R., Redman-White, W., Murray, S.J., and Mole, P.J. see Howes, R.
Nicolas, J., and Vucetic, B. see Vucetic, B.
Nisbet, W.T., and Helszajn, J. see Helszajn, J.
Nishizawa, J., Suto, K., and Kimura, T. see Suto, K.
Noakes, P.D., Massara, R.E., Standeven, J., Colley, M.J., Green, A.D.P., Mack, R.J., Monaghan, S., Ritchie, G.J., and Sagar, V.K. see Massara, R.E.
Nockolds, C.E., Moore, D.F., Holburn, D.M., and Rosolen, G.C. see Moore, D.F.

Nofal, M., and Steele, R. see Steele, R.
Nogiwa, S., Yamamoto, E., Hamada, M., Suda, K., and Oki, T. see Yamamoto, E.
Nowrouzian, B. Theory and design of LDI lattice digital and switched-capacitor filters G p517
Ntonme, J., Tonye, E., and Temdenou, J.-B. see Tonye, E.
Núñez, A., Sarmiento, R., and Carballo, P.P. see Sarmiento, R.
Nussey, I.D. Chronic disease management supported by informatics: example diabetes A p153
Nyeck, A., Mokhtari, H., Tosser-Roussey, C., and Tosser-Roussey, A. see Mokhtari, H.

O

O'Kelly, D. Calculation of the transient performance of protective current transformers including core hysteresis C p455
O'Kelly, D. Impact and transient excitation of magnetic plate including hysteresis and eddy-current action A p99
O'Leary, P., Dias, V.F., Palmisano, G., and Maloberti, F. see Dias, V.F.
O'Reilly, J.J., Darwazeh, I., Lane, P.M., Marnane, W.P., Moreira, P., Watkins, L.R., and Capstick, M.H. see Darwazeh, I.
O'Reilly, J.J., Kokkos, A., Popplewell, A., and Williams, S. see Kokkos, A.
O'Reilly, J.J., Lane, P.M., and Watkins, L.R. see Lane, P.M.
O'Reilly, J.J., Medeiros, C.R., and Fyath, R.S. see Medeiros, C.R.
O'Reilly, J.J., Popplewell, A., and Williams, S. see Popplewell, A.
O'Reilly, J.J., and Popplewell, A. see Popplewell, A.
Oakey, S., Ainscough, J., Southall, D.M., and Goodwin, A. see Ainscough, J.
Obregon, J., Couffignal, P., and Baudrand, H. see Couffignal, P.
Oerder, M., Joeressen, O., Serra, R., and Meyr, H. see Joeressen, O.
Oka, H., Fujiwara, T., and Yamada, H. see Fujiwara, T.
Oki, T., Yamamoto, E., Hamada, M., Suda, K., and Nogiwa, S. see Yamamoto, E.
Oksanen, M.I., Tretyakov, S.A., and Cherepanov, A.S. see Tretyakov, S.A.
Oksman, J., Chen, X.H., and Lu, W.X. see Chen, X.H.
Oksman, J., and Chen, X.-H. see Chen, X.-H.
Oksman, J., and Chen, X.H. see Chen, X.H.
Okui, S. Probability of co-channel interference for selection diversity reception in the Nakagami *m*-fading channel I p91
Olesen, H., Pan, X., Tromborg, B., and Lassen, H.E. see Pan, X.
Olivier, P.D. Approximating irrational transfer functions using Lagrange interpolation formula D p9
Önder, M., and Kuzuoğlu, M. Reconstruction of permittivity and conductivity profiles of a dielectric slab in the time domain by descent methods H p435
Orlandi, A., and Cristina, S. see Cristina, S.
Orton, G.A., Peppard, L.E., and Akl, S.G. Bi-way sorter: a two-dimensional systolic array E p147
Osowski, S. Neural network for estimation of harmonic components in a power system C p129
Osowski, S. Optimisation approach to the analysis of piecewise-linear convex circuits G p295
Oswald, J., Wieczorek, A., Blaumoser, M., Fink, R., Schwarz, J., and Vögtle, K.H. see Wieczorek, A.
Othman, M., Sharrif, Z.A.M., and Theong, T.S. see Sharrif, Z.A.M.
Ouda, M., and Sebak, A. Scattering from lossy dielectric cylinders using a multifilament current model with impedance boundary conditions H p429
Ovramenko, S., and Wyrzykowski, R. see Wyrzykowski, R.

P

Pagano, E., Attaianese, C., and Scarano, M. see Attaianese, C.
Pahalawaththa, N.C., and Ancell, G.B. see Ancell, G.B.
Pahlavan, K., and Ganesh, R. see Ganesh, R.
Pal Chaudhuri, P., Roy Chowdhury, D., and Sen Gupta, I. see Roy Chowdhury, D.
Palaniswami, M., and Feng, G. see Feng, G.
Palmer, P.R., and Johnson, C.M. see Johnson, C.M.
Palmisano, G., Dias, V.F., O'Leary, P., and Maloberti, F. see Dias, V.F.
Palmisano, G., Dias, V.F., and Maloberti, F. see Dias, V.F.
Pan, C.-T., and Chen, T.-C. see Chen, T.-C.
Pan, X., Olesen, H., Tromborg, B., and Lassen, H.E. Analytic description of the standing wave effect in DFB lasers J p189
Panayirci, E. Jitter analysis of a phase-locked digital timing recovery system I p267
Panchanathan, S. Universal architecture for matrix transposition E p387
Pao, Y.-H., Djukanovic, M., and Sobajic, D.J. see Djukanovic, M.
Paparao, P., and Ghosh, A.K. see Ghosh, A.K.
Paradisi, A., and Montrosset, I. Performance analysis of an all-optical gate using a multisection travelling wave amplifier J p42
Paraskevopoulos, P.N., and Koumboulis, F.N. see Koumboulis, F.N.
Parise, D., Madrangeas, B., Jarry, B., Guillon, P., Larroque, J., and Theron, B. see Madrangeas, B.
Parker, E.A., Lee, C.K., and Langley, R.J. see Lee, C.K.
Parng, T.-M., Lee, H.-C., and Lai, F. see Lee, H.-C.
Pascazio, V., Franceschetti, G., Lanari, R., and Schirinzi, G. see Franceschetti, G.
Pastorino, M., Caorsi, S., and Gragnani, G.L. see Caorsi, S.
Patel, S.B. Fast super decoupled loadflow C p13
Pathak, P.H., and Somers, G.A. see Somers, G.A.
Patranabis, D., and Ghosh, D. see Ghosh, D.
Patterson, E.B., Holmes, P.G., and Morley, D. Electronic design automation (EDA) techniques for the design of power electronic control systems G p191
Paximadis, C.T., Vasilakos, A.V., and Moschonas, C.A. see Vasilakos, A.V.
Peacock, A.J., and Wheeler, J.C.G. Development of aerial fibre optic cables for operation on 400 kV power lines A p304
Peacock, J.E., Mahfouf, M., Linkens, D.A., Asbury, A.J., and Gray, W.M. see Mahfouf, M.
Peng, S.-C., Chen, B.-S., and Chiou, B.-W. see Chen, B.-S.
Peppard, L.E., Orton, G.A., and Akl, S.G. see Orton, G.A.
Perkins, M., and Bannister, D.J. see Bannister, D.J.
Perkowski, M.A., and Schäfer, I. see Schäfer, I.
Perna, S., Galati, G., and Abbati, M. see Galati, G.
Perng, M.H., and Lee, T.S. Nearly decoupled robust MIMO control systems design D p53
Philokyprou, G., Bolis, S., and Economou, E.G. see Bolis, S.
Pichon, L., and Razek, A. Electromagnetic field computations in a three-dimensional cavity with a waveguide junction of a frequency standard H p343
Pickup, I.E.D., Russell, A.P., and Kwon, Y.-S. Analysis of current waveforms in permanent-magnet synchronous/stepping motors and synthesis of a stabilising signal B p534
Pickup, I.E.D., and Russell, A.P. Analysis of frequency- and amplitude-modulation in the stabilisation of permanent-magnet synchronous/stepping motors B p336
Pierri, R., Bucci, O.M., D'Elia, G., and Leone, G. see Bucci, O.M.
Pierri, R., Isernia, T., and Leone, G. see Isernia, T.
Pike, D.B., and Frater, M.R. see Frater, M.R.
Pinkerton, A., Lo, K.L., Zeng, P.L., and Marchand, E. see Lo, K.L.
Pires de Souza, E.J.S., and Leite da Silva, A.M. An efficient methodology for coherency-based dynamic equivalents C p371
Platte, W. Effect of surface recombination on microwave performance of laser-induced DBR gratings in silicon coplanar waveguides J p399
Pogliano, U., Bosco, G.C., and Zago, G. Balanced transconductance amplifier for precision comparison of AC/DC thermal current convertors A p218
Pons, J., Rubio, A., and Anglada, R. see Rubio, A.
Poole, C.R., Lam, V.M.T., and Yip, P.C.L. see Lam, V.M.T.
Poon, F.S.F., and Iqbal, M.S. see Iqbal, M.S.
Poon, F.S.F., and Iqbal, M.S. Design of a physical layer security mechanism for CSMA/CD networks I p103
Popović, B.D., and Kolundžija, B.M. see Kolundžija, B.M.
Popović, B.M., and Milojević, D.J. see Milojević, D.J.
Popplewell, A., Kokkos, A., O'Reilly, J.J., and Williams, S. see Kokkos, A.
Popplewell, A., O'Reilly, J.J., and Williams, S. Architectures for fast encoding and error detection of cyclic codes I p340
Popplewell, A., and O'Reilly, J.J. Runlength limited binary error control codes I p349
Porch, A., Lancaster, M.J., Maclean, T.S.M., Wu, Z., Woodall, P., and Alford, N.McN. see Lancaster, M.J.
Porter, W.A., and Aravena, J.L. see Aravena, J.L.
Potter, C.M., and Hjipieris, G. Improvements in ultra-broadband TEM coupler design H p171
Prasad, A.R., Ziogas, P.D., and Manias, S. Passive input current waveshaping method for three-phase diode rectifiers B p512
Prasad, R., Johannessen, A.B., Weyland, N.B.J., and Bons, J.H. see Johannessen, A.B.
Prasad, R., Misser, H.S., and Kegel, A. see Misser, H.S.
Prasad, R., and Liu, C.-Y. Throughput analysis of some mobile packet radio protocols in Rician fading channels I p297
Pratt, D.J., Warren-Forward, M.J., and Goodall, R.M. see Warren-Forward, M.J.
Pratt, R.H., Smowton, P.M., and Thomas, B. see Smowton, P.M.
Preece, A.W., Johnson, R.H., Green, J.L., Robinson, M.P., and Clarke, R.N. see Johnson, R.H.
Pringle, R.D., Hamilton, R.J., and Grant, P.M. see Hamilton, R.J.
Pringle, R.D., Mowbray, R.S., and Grant, P.M. see Mowbray, R.S.
Pritchard, T.I., Evans, P.S.A., and Taylor, D. Development of generic testing strategies for mixed-signal integrated circuits G p231
Pulford, G.W., and Kennedy, R.A. Maximum *a posteriori* decision feedback detection I p546
Puzović, R., and Stanković, L. see Stanković, L.

Q

Qin, Y.H., Malik, O.P., Chen, G.P., Hope, G.S., and Xu, G.Y. see Malik, O.P.
Quaia, S., and Tosato, F. see Tosato, F.
Quek, C., and Leitch, R. see Leitch, R.
Quigley, S.F., Walke, R.L., and Webb, P.W. see Walke, R.L.
Quillec, M., and Allovon, M. see Allovon, M.
Quintana, J.M., Avedillo, M.J., and Huertas, J.L. see Avedillo, M.J.

R

Ra, J.W., Lee, J.M., and Kim, S.Y. see Lee, J.M.
Rabinovici, R., and Kaplan, B.Z. Simple and direct computer simulation of continuous-mode resonant convertors in steady state G p411
Ragot, J., Maquin, D., and Sauter, D. Data validation using orthogonal filters D p47
Rahman, M.F., Low, T.S., Lim, K.W., and Binns, K.J. see Low, T.S.
Ramírez-Angulo, J. Low-voltage BICMOS vertical OTA G p553
Ramachandran, V., Ahmadi, M., Mazinani, A., and Shridhar, M. see Ahmadi, M.
Ramachandran, V., Gargour, C.S., and Ahmadi, M. see Gargour, C.S.
Ranade, A.C., and Sircar, P. see Sircar, P.
Ranjithan, S., Michielssen, E., and Mittra, R. see Michielssen, E.
Rao, K.S.P., Lakshmi, S.R., Tripathy, S.C., and Balasubramanian, R. see Lakshmi, S.R.
Rao, T.C.K. Radiation characteristics of a circular waveguide containing a chiral medium H p1
Raut, R., Bhattacharyya, B.B., and Faruque, S.M. Systolic array architecture implementation of parasitic-insensitive switched-capacitor filters G p384
Ravid, R., and Levanon, N. Maximum-likelihood CFAR for Weibull background F p256
Raychaudhuri, D. Time-of-arrival-based retransmission scheduling for unslotted random access channels I p303
Razavi, H.M., and Battelini, J. Design of a residue arithmetic multiplier G p581
Razek, A., and Pichon, L. see Pichon, L.
Reader, H.C., Lucyszyn, S., Magnier, V., and Robertson, I.D. see Lucyszyn, S.
Reader, H.C., and Hoile, G.A. see Hoile, G.A.
Redman-White, W., Howes, R., Nichols, K.G., Murray, S.J., and Mole, P.J. see Howes, R.
Reed, I.S. Wave packet with special relativity demonstrating quantum rules, Schrödinger's equation and the propagator integral A d343
Reilly, J.P., Haykin, S., Kezys, V., and Vertatschitsch, E. see Haykin, S.
Reinhart, F.K., Miles, R.O., Dupertuis, M.A., and Brosson, P.M. see Miles, R.O.
Richards, R.J., and Habibi, S.R. see Habibi, S.R.
Ridler, N.M., Medley, J.C., Baden Fuller, A.J., and Runham, M. Computer generated equivalent circuit models for coaxial-line offset open circuits A p229
Riege, M.W., and Besslich, Ph.W. Low-complexity synthesis of incompletely specified multiple-output mod-2 sums E p355
Ripoll, A., Luque, E., and Diez, T. see Luque, E.
Ristanović, P.M., Bjelogrlić, M.R., Čalović, M.S., and Babić, B.S. see Bjelogrlić, M.R.
Ritchie, G.J., Massara, R.E., Standeven, J., Colley, M.J., Green, A.D.P., Mack, R.J., Monaghan, S., Noakes, P.D., and Sagar, V.K. see Massara, R.E.
Ritchie, S., Burke, S.V., Kendall, P.C., Robertson, M.J., and Robson, P.N. see Burke, S.V.
Ro, R., Varadan, V.V., and Varadan, V.K. Electromagnetic activity and absorption in microwave chiral composites H p441
Röde, B., Herdeg, W.F., and Wendel, H. see Herdeg, W.F.
Rönnbäck, S., Walgama, K.S., and Sternby, J. see Walgama, K.S.
Robbins, D.J., Kirkby, C.J.G., Goodwin, M.J., Moseley, A.J., Kearley, M.Q., and Thompson, J. see Kirkby, C.J.G.
Robertini, A., and Guggenbühl, W. Modelling and settling times of amplifiers in SC circuits G p131
Roberts, P.D., Amini, Z., and Lin, J. see Amini, Z.
Roberts, P.D., Lin, J., and Gionas, I. see Lin, J.
Roberts, S., and Tarassenko, L. Analysis of the sleep EEG using a multilayer network with spatial organisation F p420
Robertson, I.D., Lucyszyn, S., Magnier, V., and Reader, H.C. see Lucyszyn, S.
Robertson, M.J., Burke, S.V., Kendall, P.C., Ritchie, S., and Robson, P.N. see Burke, S.V.
Robinson, J.P., and Edirisooriya, G. see Edirisooriya, G.
Robinson, M.P., Johnson, R.H., Green, J.L., Preece, A.W., and Clarke, R.N. see Johnson, R.H.
Roboam, X., Andrieux, C., De Fornel, B., and Hapiot, J.C. Rotor flux observation and control in squirrel-cage induction motor: reliability with

respect to parameters variations **D** p363
Robson, P.N., Burke, S.V., Kendall, P.C., Ritchie, S., and Robertson, M.J. see Burke, S.V.
Rochotzki, R., and Friedrich, M. Temperature measurements of polymer substrates (PMMA) in an RF discharge **A** p61
Roddie, A.G., Henderson, D., and Smith, A.J.A. see Henderson, D.
Rodríguez, E., and Martin, J.M. Theory and design of interferometric synthetic aperture radars **F** p147
Rodríguez-Vázquez, A., Linares-Barranco, B., Sánchez-Sinencio, E., and Huertas, J.L. see Linares-Barranco, B.
Rodriguez-Tellez, J. Microwave probe for circuit/device testing **G** p333
Rodriguez-Tellez, J., and England, P.J. Five-parameter DC GaAs MESFET model for nonlinear circuit design **G** p325
Rosolen, G.C., Moore, D.F., Holburn, D.M., and Nockolds, C.E. see Moore, D.F.
Rossi, F., Chiodo, E., Losi, A., and Mongelluzzo, R. see Chiodo, E.
Rossiter, J.A., Kouvaritakis, B., and Chang, A.O.T. see Kouvaritakis, B.
Rossiter, J.A., and Kouvaritakis, B. see Kouvaritakis, B.
Roux, J., Metz, M., Ben Doua, S., Arches, J.P., and Foch, H. see Metz, M.
Rowden, C.G, and Zhao, Z. see Zhao, Z.
Roy, C.K., Munshi, S., and Biswas, J.R. see Munshi, S.
Roy Chowdhury, D., Sen Gupta, I., and Pal Chaudhuri, P. Cellular automata based pattern generator for testing RAM **E** p469
Rozenweig, M., Möhrle, M., Düser, H., and Grützmacher, D. see Möhrle, M.
Ruano, A.E.B., Fleming, P.J., and Jones, D.I. Connectionist approach to PID autotuning **D** p279
Rubio, A., Kajihara, S., and Kinoshita, K. Class of undetectable stuck-open branches in CMOS memory elements **G** p503
Rubio, A., Pons, J., and Anglada, R. Crosstalk tolerant latch circuit **G** p5
Ruiz, G., Michell, J., and Burón, A. Switch-level fault detection and diagnosis environment for MOS digital circuits using spectral techniques **E** p293
Runham, M., Ridler, N.M., Medley, J.C., and Baden Fuller, A.J. see Ridler, N.M.
Rupprecht, W., Wesołowski, K., and Zhao, C.M. see Wesołowski, K.
Russell, A.P., Pickup, I.E.D., and Kwon, Y.-S. see Pickup, I.E.D.
Russell, A.P., and Pickup, I.E.D. see Pickup, I.E.D.
Russer, P., Luy, J.-F., Strohm, K.M., and Buechler, J. see Luy, J.-F.
Rye, J., Young, D.J., Lo, K.L., McDonald, J.R., and Howard, R. see Young, D.J.

S

Sánchez, J.L., Moreno, L., and Acosta, L. see Moreno, L.
Sánchez, P., Bracho, S., Villar, E., Martínez, M., and Allende, M.A. see Bracho, S.
Sánchez-Sinencio, E., Linares-Barranco, B., Rodríguez-Vázquez, A., and Huertas, J.L. see Linares-Barranco, B.
Sachidananda, M., and Inderjit, . see Inderjit, .
Safi, S.K., and Bumby, J.R. Analysis of magnetic fields in the slotted structure of a superconducting AC generator **C** p411
Sagar, V.K., Massara, R.E., Standeven, J., Colley, M.J., Green, A.D.P., Mack, R.J., Monaghan, S., Noakes, P.D., and Ritchie, G.J. see Massara, R.E.
Saitoh, H., Koshiba, M., Eguchi, M., and Hirayama, K. see Koshiba, M.
Sakagami, I. Frequency domain behaviour of coupled-line digital frequency multipliers **H** p271
Sakui, M., and Fujita, H. Calculation of harmonic currents in a three-phase convertor with unbalanced power supply conditions **B** p478
Salama, A.E., and Amer, F.Z. Parameter identification approach to fault diagnosis of switched capacitor circuits **G** p467
Salama, M.H., and Holmes, P.G. Modelling and dynamic performance of variable-frequency-fed induction motors **B** p191
Salami, R., Hanzo, L., Steele, R., and Fortune, P.M. see Hanzo, L.
Saleh, M.M., and Charalambous, C. see Charalambous, C.
Salehi, M. Capacity and coding for memories with real-time noisy defect information at encoder and decoder **I** p113
Salous, S. IF digital generation of FMCW waveforms for wideband channel characterisation **I** p281
Salvatore, L., and Stasi, S. Application of EKF to parameter and state estimation of pmsm drive **B** p155
Sandler, M. New synthesis techniques for high order all-pole filters **G** p9
Sandler, M.B., Yu, J., and Hawken, R.E. see Yu, J.
Sangster, A.J. Scattering analysis of a waveguide slot radiator enclosed in a parallel plate polariser **H** p414
Sangwine, S.J. Diagnosis of multiple faults in combinational digital circuits by modelling of transition propagation along critical paths **G** p594
Sankar, S., Arrillaga, J., Arnold, C.P., and Watson, N.R. see Arrillaga, J.
Santos, H.A., and Fernandes, C.F. see Fernandes, C.F.
Sarabandi, K., Ulaby, F.T., and Nashashibi, A. see Ulaby, F.T.
Sargood, S.K., Kiely, P.A., Taylor, G.W., Docter, D.P., Claisse, P.R., Vang, T., Evaldsson, P.A., Daryanani, S., Cooke, P., and Brown-Goebeler, K.F. see Kiely, P.A.
Sargos, F.M., Machmoum, M., Le Doeuff, R., and Cherkaoui, M. see Machmoum, M.
Sarkar, D., and Singh, C. see Singh, C.
Sarmiento, R., Carballo, P.P., and Núñez, A. High speed primitives of hardware accelerators for DSP in GaAs technology **G** p205
Šarunac, R., and Godec, Z. see Godec, Z.
Sassone, G., and Dallago, E. see Dallago, E.
Satyanarayanan, R., and Muthukrishnan, C.R. Message-efficient distributed mutual exclusion incorporating the 'least recently used' fairness criterion **E** p501
Sauter, D., Ragot, J., and Maquin, D. see Ragot, J.
Savio, A.D., Bhattacharya, P.K., Kousik, G.S., and Nandakumar, R.P. The effect of substrate resistivity on threshold voltage shifts due to radiation-induced damage in IGFET **G** p400
Scarano, M., Attaianese, C., and Pagano, E. see Attaianese, C.
Schäfer, I., and Perkowski, M.A. Multiple valued input generalised Reed–Muller forms **E** p519
Schirinzi, G., Franceschetti, G., Lanari, R., and Pascazio, V. see Franceschetti, G.
Schneider, M.C., Bermudez, J.C.M., and Montoro, C.G. see Bermudez, J.C.M.
Schwarz, J., Wieczorek, A., Blaumoser, M., Fink, R., Oswald, J., and Vögtle, K.H. see Wieczorek, A.
Searle, M.D., Last, J.D., and Farnworth, R.G. see Last, J.D.
Sebak, A., and Ouda, M. see Ouda, M.
Sebakhy, O.A., and Murad, H.A. Design of restricted complexity digital regulators using explicit criterion minimisation **D** p251
Seeds, A.J., and Benjamin, R. see Benjamin, R.
Seeds, A.J., and Zaglanikis, C.D. see Zaglanikis, C.D.
Seker, S.S. VHF/UHF radiowave propagation through forests: modelling and experimental observations **H** p72
Sen Gupta, I., Roy Chowdhury, D., and Pal Chaudhuri, P. see Roy Chowdhury, D.
Serizawa, Y., Watanabe, Y., and Takeshita, S. Multipath propagation effects on digital radio equipped with a plane reflector repeater **I** p176
Serra, R., Joeressen, O., Oerder, M., and Meyr, H. see Joeressen, O.
Sevaioğlu, O., and Eskicioğlu, A.M. see Eskicioğlu, A.M.
Shafai, L., and Lin, Y. see Lin, Y.
Shakouri, H., and Liou, J.J. Optically driven photoconductive devices for power switching application. Part I: Theory and experimental results **G** p343
Shamai, S., and Kaplan, G. see Kaplan, G.
Shan, X.-M., Xiao, C.-S., and Feng, Z.-M. see Xiao, C.-S.
Shaout, A., and Suk, M. Distance measure for attributed fuzzy tournaments **E** p373
Sharrif, Z.A.M., Othman, M., and Theong, T.S. Noise analysis for digit slicing FFT **F** d278
Shaw, P., and Dale, B.G. see Dale, B.G.
Sheen, D.M., Gu, Q., and Ali, S.M. see Gu, Q.
Shen, Y.-N., Lombardi, F., and Muzio, J. see Lombardi, F.
Shenoy, M.R., and De La Rue, R.M. On the refractive index of rutile **J** p163
Shepherd, P.R., and Al-Qutayri, M.A. see Al-Qutayri, M.A.
Shepherd, P.R., and Martin, J.D. Implementation of an IC design teaching course **G** p161
Sherlock, B.G., and Monro, D.M. Moving discrete Fourier transform **F** p279
Sheshadri, T.S. Current density on cathode surface of MPD thrusters **A** p125
Sheu, B.J., and Chen, D.J. see Chen, D.J.
Shi, Z., and Fairman, F. A cumulant based TK method for the harmonic retrieval problem **F** p221
Shieh, L.-S., Guo, T.-Y., Hwang, C., and Chen, C.-H. see Guo, T.-Y.
Shiozaki, A., and Lee, J. see Lee, J.
Shiu, J., and Wu, J.-L. see Wu, J.-L.
Shivaprasad, A.P., Mathew, G., and Narasimhan, S.V. see Mathew, G.
Shore, K.A., Lambkin, P.M., and Montrosset, I. see Lambkin, P.M.
Shore, K.A., and Wong, Y.C.A. see Wong, Y.C.A.
Shridhar, M., Ahmadi, M., Mazinani, A., and Ramachandran, V. see Ahmadi, M.
Shukla, P.K., and Turner, L.F. Examination of an adaptive DFE and MLSE/near-MLSE for fading multipath radio channels **I** p418
Sihvola, A.H., Lindell, I.V., and Ermutlu, M.E. see Lindell, I.V.
Silvestro, J.W., and Butler, C.M. TE scattering from a perfectly conducting wedge loaded by a slot **H** p105
Simmons, J.L., Hobson, R.F., Hoskin, J.D., and Spilsbury, R.W. see Hobson, R.F.
Simpson, H.R. Correctness analysis for class of asynchronous communication mechanisms **E** p35
Simpson, T.L., Chen, Y., and Ho, T.Q. see Chen, Y.
Singh, B., and Leslie, T.C. see Leslie, T.C.
Singh, C., and Sarkar, D. Practical considerations in the optimisation of induction motor design **B** p365
Singh, J., Mudhar, P.S., Mace, D.A.H., Fisher, M.A., and Adams, M.J. see Mudhar, P.S.
Singh, U., and Chen, C.Y.R. Technique for 1-dimensional VLSI layout generation **G** p635
Sinha, A.K., Verma, R., Gupta, R.K., Kumar, L., Joshi, S.N., Jain, P.K., and Basu, B.N. Simplified tape model of arbitrarily-loaded helical slow-wave structures of a travelling-wave tube **H** p347
Sinha, N.K., and Dai, H. see Dai, H.
Sircar, P., and Ranade, A.C. Nonuniform sampling and study of transient systems response **F** p49
Skodras, A.N., and Constantinides, A.G. Efficient computation of the split-radix FFT **F** p56
Slaninka, P., and Morgan, V.T. External thermal resistance of power cable in nonuniform soil **A** p117
Sluss Jr, J.J., Tayag, T.J., and Batchman, T.E. Effects of impurities on photocarrier mobility in $Bi_{12}SiO_{20}$ **J** p357
Smit, S.G., Steinbuch, M., Terlouw, J.C., and Bosgra, O.H. see Steinbuch, M.
Smith, A.J.A., Henderson, D., and Roddie, A.G. see Henderson, D.
Smith, F.C., Chambers, B., and Bennett, J.C. Calibration techniques for free space reflection coefficient measurements **A** p247
Smowton, P.M., Thomas, B., and Pratt, R.H. Frequency stabilisation of visible output laser diodes **J** p75
Snaith, M.A., and Holland, O.E. see Holland, O.E.
Snowden, D., Huang, S.M., Xie, C.G., Thorn, R., and Beck, M.S. see Huang, S.M.
Snowden, D., Xie, C.G., Huang, S.M., Hoyle, B.S., Thorn, R., Lenn, C., and Beck, M.S. see Xie, C.G.
Söderström, T., and Stoica, P. see Stoica, P.
Sobajic, D.J., Djukanovic, M., and Pao, Y.-H. see Djukanovic, M.
Sobocki, R. Numerical approximation of heat run test results of transformers by means of double exponential and power functions **C** p469
Soinski, M. Angular dependencies in Fe-based commercial soft magnetic materials **A** p273
Somers, G.A., and Pathak, P.H. Uniform GTD solution for the diffraction by metallic tapes on panelled compact-range reflectors **H** p297
Song, B., and Fu, J. Efficient analysis of finline structures by the boundary-element method **H** p116
Song, B., and Fu, J. Modified indirect boundary element technique and its application to electromagnetic potential problems **H** p292
Song, J.-H., Yoon, T.-W., Kim, K.-H., Kim, K.-B., and Youn, M.-J. Control loop study of a load commutated CSI-fed induction motor **B** p183
Song, Y.H. Novel adaptive control scheme for improving power system stability **C** p423
Songcan, Chen, Guoqing, Yang, and Jun, Lu see Guoqing, Yang
Sorrentino, C.M., and Suresh Babu, B.N. see Suresh Babu, B.N.
Soryani, M., and Clarke, R.J. Segmented coding of digital image sequences **I** p212
Sottek, R., Ackermann, B., Janssen, J.H.H., and van Steen, R.I. see Ackermann, B.
Southall, D.M., Ainscough, J., Oakey, S., and Goodwin, A. see Ainscough, J.
Spagnolo, R., Amato, G., Benedetto, G., Boarino, L., and Maringelli, M. see Amato, G.
Spanias, A.S., and Loizou, P.C. Mixed Fourier/Walsh transform scheme for speech coding at 4.0 kbit/s **I** p473
Spilsbury, R.W., Hobson, R.F., Hoskin, J.D., and Simmons, J.L. see Hobson, R.F.
Spooner, E., and Chalmers, B.J. 'TORUS': A slotless, toroidal-stator, permanent-magnet generator **B** p497
Spooner, E., and Hamlaoui, M.N. see Hamlaoui, M.N.
Spray, A., and Jones, S. Performance trade-offs of globally clocked data-driven arrays **G** p527
Spreadbury, P.J. Eight-digit voltage measurements: how meaningful are they? **A** p243
Srisuchinwong, B., Tsalides, Ph., York, T.A., Hicks, P.J., and Thanailakis, A. VLSI implementation of mod-p multipliers using homomorphisms and hybrid cellular automata **E** p486
Srivastava, A. Low temperature behaviour of channel transit time constant in MOS transistor **G** p104
Srivastava, V., and Joshi, S.N. Improved nonlinear model for multisignal analysis of helix TWTs **H** p129
Standeven, J., Massara, R.E., Colley, M.J., Green, A.D.P., Mack, R.J., Monaghan, S., Noakes, P.D., Ritchie, G.J., and Sagar, V.K. see Massara, R.E.
Stanković, L., and Puzović, R. Noise analysis for digit slicing FFT (Reply) **F** d278
Stanković, R.S., and Moraga, C. Methods for detection of some properties of multiple-valued functions **E** p421

Starzyk, J.A., and Stenbakken, G.N. see Stenbakken, G.N.
Stasi, S., and Salvatore, L. see Salvatore, L.
Steele, R., Hanzo, L., Salami, R., and Fortune, P.M. see Hanzo, L.
Steele, R., and Nofal, M. Teletraffic performance of microcellular personal communication networks **I** p448
Steinbuch, M., Terlouw, J.C., Bosgra, O.H., and Smit, S.G. Uncertainty modelling and structured singular-value computation applied to an electromechanical system **D** p301
Stenbakken, G.N., and Starzyk, J.A. Diakoptic and large change sensitivity analysis **G** p114
Stephenson, J.M., and Lovatt, H.C. see Lovatt, H.C.
Sterling, M.J.H., Chebbo, A.M., and Irving, M.R. see Chebbo, A.M.
Stern, M.S., Benson, T.M., Kendall, P.C., and Matin, M.A. see Benson, T.M.
Sternby, J., Walgama, K.S., and Rönnbäck, S. see Walgama, K.S.
Steven, G.B., Adams, R.G., Findlay, P.A., and Trainis, S.A. iHARP: a multiple instruction issue processor **E** p439
Stoica, P., and Söderström, T. Statistical analysis of a subspace method for bearing estimation without eigendecomposition **F** p301
Stokes, A.D. High-voltage line-dropping switching stresses **C** p21
Stouraitis, T. Efficient convertors for residue and quadratic-residue number systems **G** p626
Stove, A.G. Linear FMCW radar techniques **F** p343
Strohm, K.M., Luy, J.-F., Buechler, J., and Russer, P. see Luy, J.-F.
Stuns, I., Aarnio, J., and Heimala, P. see Aarnio, J.
Stylianou, A., Debono, P., and Vardaxoglou, J.C. Iterative computation of current and field distributions in multilayer frequency selective surfaces **H** p535
Su, Q., and James, R.E. Analysis of partial discharge pulse distribution along transformer windings using digital filtering techniques **C** p402
Su, S., Chiang, Y.-C., and Tzuang, C.-K.C. see Chiang, Y.-C.
Su, Yu T. Decoding metrics for slow frequency-hopped DPSK systems **I** p525
Such, V., Navarro, E.A., Gimeno, B., and Cruz, J.L. see Navarro, E.A.
Such, V., and Navarro, E.A. see Navarro, E.A.
Suda, K., Yamamoto, E., Hamada, M., Nogiwa, S., and Oki, T. see Yamamoto, E.
Suk, M., and Shaout, A. see Shaout, A.
Sultan, M.A., Hassan, M.F., and Attia, M.S. see Hassan, M.F.
Sun, S.Q., and Xiang, Q.R. Waveform distortion and distortion power **B** p303
Suresh Babu, B.N., and Sorrentino, C.M. Analogue-to-digital convertor effects on airborne radar performance **F** p73
Suto, K., Kimura, T., and Nishizawa, J. Semiconductor Raman laser pumped with a fundamental mode **J** p407
Swart, P.H., and Von Bergmann, H.M. see Von Bergmann, H.M.
Sykas, E.D., and Lyberopoulos, G.L. Performance analysis of interconnected CSMA/CD local area networks **I** p181
Szaraniec, W., and Kazimierczuk, M.K. see Kazimierczuk, M.K.

T

Tabbara, H.S., and Diab, H.B. see Diab, H.B.
Takada, J., Takahashi, M., Ando, M., and Goto, N. see Takahashi, M.
Takahashi, M., Takada, J., Ando, M., and Goto, N. Characteristics of small-aperture, single-layered, radial-line slot antennas **H** p79
Takao, K., and Boon, C.S. Importance of the exclusion of the desired signal from the control of a generalised sidelobe canceller **F** p265
Takeshita, S., Serizawa, Y., and Watanabe, Y. see Serizawa, Y.
Tamir, T., and Cory, H. see Cory, H.
Tarassenko, L., Tombs, J.N., and Murray, A.F. see Tombs, J.N.
Tarassenko, L., and Roberts, S. see Roberts, S.
Taub, D.M. Clockless synchronisation of distributed concurrent processes **E** p88
Taub, D.M. Corrected settling time of the distributed parallel arbiter **E** p348
Tayag, T.J., Sluss Jr, J.J., and Batchman, T.E. see Sluss Jr, J.J.
Taylor, D., Pritchard, T.I., and Evans, P.S.A. see Pritchard, T.I.
Taylor, G.W., Kiely, P.A., Docter, D.P., Claisse, P.R., Vang, T., Evaldsson, P.A., Sargood, S.K., Daryanani, S., Cooke, P., and Brown-Goebeler, K.F. see Kiely, P.A.
Tealby, J.M., Benson, F.A., and Cudd, P.A. see Benson, F.A.
Temdenou, J.-B., Tonye, E., and Ntonme, J. see Tonye, E.
Teo, C.-Y., Ypsilantis, J., and Yee, H. see Ypsilantis, J.
Ter-Gazarian, A.G., and Kagan, N. Design model for electrical distribution systems considering renewable, conventional and energy storage units **C** p499
Terlouw, J.C., Steinbuch, M., Bosgra, O.H., and Smit, S.G. see Steinbuch, M.
Tham, M.T., Kambhampati, C., Montague, G.A., and Morris, A.J. see Kambhampati, C.
Thanailakis, A., Srisuchinwong, B., Tsalides, Ph., York, T.A., and Hicks, P.J. see Srisuchinwong, B.
Thanailakis, A., Tzionas, P., and Tsalides, Ph. see Tzionas, P.
Thejel, R.H., El-Maghraby, M.H., and Ibrahim, M.M. see El-Maghraby, M.H.
Theodorou, N., Tzafestas, S., and Kanellakis, A. see Tzafestas, S.
Theong, T.S., Sharrif, Z.A.M., and Othman, M. see Sharrif, Z.A.M.
Theron, B., Madrangeas, B., Jarry, B., Guillon, P., Larroque, J., and Parise, D. see Madrangeas, B.
Thomas, B., Smowton, P.M., and Pratt, R.H. see Smowton, P.M.
Thompson, J., Kirkby, C.J.G., Goodwin, M.J., Moseley, A.J., Robbins, D.J., and Kearley, M.Q. see Kirkby, C.J.G.
Thorburn, M.A., Biswas, A., and Tripathi, V.K. Application of the method of lines to planar transmission lines in waveguides with composite cross-sectional geometries **H** p542
Thorington, C.B., Wandzura, S.M., Turley, R.S., and Hamilton, L.R. see Wandzura, S.M.
Thorn, R., Huang, S.M., Xie, C.G., Snowden, D., and Beck, M.S. see Huang, S.M.
Thorn, R., Xie, C.G., Huang, S.M., Hoyle, B.S., Lenn, C., Snowden, D., and Beck, M.S. see Xie, C.G.
Thorp, J.S., Chiang, H.-D., Wang, J.-C., Lu, J., and Aubert, B. see Chiang, H.-D.
Thurai, M., and Goddard, J.W.F. Precipitation scatter measurements from a transhorizon experiment at 11.2 GHz **H** p53
Timmermann, D., Hahn, H., and Hosticka, B.J. see Hahn, H.
Togneri, R., Alder, M.D., and Attikiouzel, Y. Dimension and structure of the speech space **I** p123
Tombs, J.N., Tarassenko, L., and Murray, A.F. Novel analogue VLSI design for multilayer networks **F** p426
Tonye, E., Temdenou, J.-B., and Ntonme, J. Computer simulation of multimicrostrip patches antenna problem **H** p59
Tosato, F., and Quaia, S. Cathodic protection of extended buried conductor networks: a new design method **B** p443
Tosser-Roussey, A., Mokhtari, H., Nyeck, A., and Tosser-Roussey, C. see Mokhtari, H.
Tosser-Roussey, C., Mokhtari, H., Nyeck, A., and Tosser-Roussey, A. see Mokhtari, H.
Trainis, S.A., Steven, G.B., Adams, R.G., and Findlay, P.A. see Steven, G.B.
Tretyakov, S.A., Oksanen, M.I., and Cherepanov, A.S. New ferrite-filled waveguiding structures analysed by the averaging method **H** p227
Tripathi, V.K., Thorburn, M.A., and Biswas, A. see Thorburn, M.A.
Tripathy, S.C., Lakshmi, S.R., Rao, K.S.P., and Balasubramanian, R. see Lakshmi, S.R.
Tromborg, B., Pan, X., Olesen, H., and Lassen, H.E. see Pan, X.
Trovato, M., Carnimeo, L., Fanti, M.P., and Turchiano, B. see Carnimeo, L.
Tsalides, Ph., Srisuchinwong, B., York, T.A., Hicks, P.J., and Thanailakis, A. see Srisuchinwong, B.
Tsalides, Ph., Tzionas, P., and Thanailakis, A. see Tzionas, P.
Tsao, H.-W., Lee, Y.-H., Wu, J., and Kao, M.-S. see Lee, Y.-H.
Tsay, C.S., Liu, B.D., Chen, C.H., and Fuh, R.L. see Liu, B.D.
Tsay, M.K., Ju, R.H., and Jou, I.C. see Ju, R.H.
Tseng, C.W., and Liaw, C.M. see Liaw, C.M.
Tsoi, A.C., and Murtagh, P. see Murtagh, P.
Tu, M.-H., and Lin, C.-M. Robust stabilisation of multivariable feedback systems with desired performance requirement **D** p259
Tu, M.-H., and Lin, C.-M. Synthesis of pole-zero assignment control law with minimum control input **D** p291
Tucker, R. Voice activity detection using a periodicity measure **I** p377
Turchiano, B., Carnimeo, L., Fanti, M.P., and Trovato, M. see Carnimeo, L.
Turkmani, A.M.D. Probability of error for *M*-branch macroscopic selection diversity **I** p71
Turkmani, A.M.D., and Carter, P.P.S. see Carter, P.P.S.
Turley, R.S., Wandzura, S.M., Thorington, C.B., and Hamilton, L.R. see Wandzura, S.M.
Turner, L.F., and Shukla, P.K. see Shukla, P.K.
Tzafestas, S., Kanellakis, A., and Theodorou, N. Application of frequency dependent Lyapunov equation to 2-dimensional problems **D** p197
Tzionas, P., Tsalides, Ph., and Thanailakis, A. Design and VLSI implementation of a pattern classifier using pseudo 2D cellular automata **G** p661
Tzuang, C.-K.C., Chiang, Y.-C., and Su, S. see Chiang, Y.-C.

U

Ubeda, J.R., and Allan, R.N. Sequential simulation applied to composite system reliability evaluation **C** p81
Uehara, M., and Allen, J.E. Electromagnetic energy and power in terms of charges and potentials instead of fields **A** p42
Ulaby, F.T., Sarabandi, K., and Nashashibi, A. Statistical properties of the Mueller matrix of distributed targets **F** p136
Ülgüt, F., Ermiş, M., Ertan, H.B., and Akpınar, E. see Ermiş, M.
Unwin, R.T., and Cryan, R.A. see Cryan, R.A.

V

Vahldieck, R., Cai, Z., Xiao, S., and Bornemann, J. see Cai, Z.
Valenzano, A., Montuschi, P., and Ciminiera, L. see Montuschi, P.
Van de Capelle, A.R., and Vandenbosch, G.A.E. see Vandenbosch, G.A.E.
van Steen, R.I., Ackermann, B., Janssen, J.H.H., and Sottek, R. see Ackermann, B.
Vandenbosch, G.A.E., and Van de Capelle, A.R. Use of subsectional edge expansion functions (SEEFs) to analyse rectangular microstrip antennas with the method of moments **H** p159
Vang, T., Kiely, P.A., Taylor, G.W., Docter, D.P., Claisse, P.R., Evaldsson, P.A., Sargood, S.K., Daryanani, S., Cooke, P., and Brown-Goebeler, K.F. see Kiely, P.A.
Varadan, V.K., Ro, R., and Varadan, V.V. see Ro, R.
Varadan, V.V., Ro, R., and Varadan, V.K. see Ro, R.
Vardaxoglou, J.C., Stylianou, A., and Debono, P. see Stylianou, A.
Varin, C., Aboudou, A., Vilcot, J.P., Danneville, F., Decoster, D., Delhaye, E., Boissenot, P., Deschamps, F., and Lecuru, I. see Aboudou, A.
Varlow, B.R., Auckland, D.W., and Cooper, J.M. see Auckland, D.W.
Varlow, B.R., Auckland, D.W., and Kabir, S.M.F. see Auckland, D.W.
Vasilakos, A.V., Paximadis, C.T., and Moschonas, C.A. Two-/multi-action discretised learning routine algorithms in interaction with threshold-based flow control for computer networks **E** p93
Vassallo, C. Improvement of finite difference methods for step-index optical waveguides **J** p137
Vaughan, J.G. Static performance of a divide-and-conquer information-distribution protocol supporting a load-balancing scheme **E** p430
Venkatesh, Y.V. Hermite polynomials for signal reconstruction from zero-crossings. Part 1: One-dimensional signals **I** p587
Verma, R., Sinha, A.K., Gupta, R.K., Kumar, L., Joshi, S.N., Jain, P.K., and Basu, B.N. see Sinha, A.K.
Vertatschitsch, E., Haykin, S., Reilly, J.P., and Kezys, V. see Haykin, S.
Vilcot, J.P., Aboudou, A., Danneville, F., Decoster, D., Delhaye, E., Boissenot, P., Varin, C., Deschamps, F., and Lecuru, I. see Aboudou, A.
Villablanca, M.E., and Arrillaga, J. Pulse multiplication in parallel convertors by multitap control of interphase reactor **B** p13
Villar, E., Bracho, S., Martinez, M., Sánchez, P., and Allende, M.A. see Bracho, S.
Vincent, J.M., Waite, J.B., and Myers, D.J. Automatic location of visual features by a system of multilayered perceptrons **F** p405
Vögtle, K.H., Wieczorek, A., Blaumoser, M., Fink, R., Oswald, J., and Schwarz, J. see Wieczorek, A.
Völker, M. Coherent all-fibre optical beam-steering technique for phased-array antennas **J** p305
Volakis, J.L., Jin, J.-M., and Liepa, V.V. see Jin, J.-M.
Voliotis, S.D. Orientation planning in continuous path applications for wrist partitioned manipulators **D** p495
Von Bergmann, H.M., and Swart, P.H. Thyristor-driven pulsers for multikilowatt average power lasers **B** p123
Vucetic, B., and Nicolas, J. Performance of 8-PSK trellis codes over nonlinear fading mobile satellite channels **I** p462
Vukelja, P.I., and Zdravković, Z.S. see Zdravković, Z.S.

W

Waite, J.B., Vincent, J.M., and Myers, D.J. see Vincent, J.M.
Walczowski, L.T., Waller, W.A.J., and Wells, E. Teaching full-custom design skills using Chip-Wise **G** p154
Waldron, M.A., and Carter, C.N. see Carter, C.N.
Wale, M.J., and Birkmayer, W.S. see Birkmayer, W.S.
Wales, S.W. Spectral efficiency of *M*-QAM in frequency reuse radio systems **I** p381
Walgama, K.S., Rönnbäck, S., and Sternby, J. Generalisation of conditioning techniques for anti-windup compensators **D** p109
Walke, R.L., Quigley, S.F., and Webb, P.W. Design of an analogue subthreshold multiplier suitable for implementing an artificial neural network **G** p261

Walker, S.D., and Bates, R.J.S. see Bates, R.J.S.
Waller, W.A.J., Walczowski, L.T., and Wells, E. see Walczowski, L.T.
Wandzura, S.M., Thorington, C.B., Turley, R.S., and Hamilton, L.R. Fast Fourier transform techniques for solving the electric field integral equation for a periodic body **H** p401
Wang, J., and Moeneclaey, M. see Moeneclaey, M.
Wang, J.-C., Chiang, H.-D., Thorp, J.S., Lu, J., and Aubert, B. see Chiang, H.-D.
Wang, J.-F., Chen, P.-C., Liu, B.-D., and Chen, C.-P. see Chen, P.-C.
Wang, J.S., Chang, R.F., and Chen, W.T. see Chang, R.F.
Wang, L., and Cluett, W.R. see Cluett, W.R.
Wang, L., and Goldberg, M. Pyramid transform coding **I** p364
Wang, Q., and Clarke, R.J. A new motion-compensated image sequence coding scheme at 64 kbit/s **I** p219
Wang, W.-J., and Cheng, C.-F. Stabilising controller and observer synthesis for uncertain large-scale systems by the Riccati equation approach **D** p72
Warham, A.G.P., Jenkins, S., and Clarke, R.N. see Jenkins, S.
Warren, N.P., and Wyard, P.J. see Wyard, P.J.
Warren-Forward, M.J., Goodall, R.M., and Pratt, D.J. Three-dimensional displacement and force transducer **A** p21
Warwick, K., and Kuan, K.K. see Kuan, K.K.
Watanabe, Y., Serizawa, Y., and Takeshita, S. see Serizawa, Y.
Waterfall, R.C., Dickin, F.J., Hoyle, B.S., Hunt, A, Huang, S.M., Ilyas, O., Lenn, C., Williams, R.A., Xie, C.G., and Beck, M.S. see Dickin, F.J.
Watkins, L.R., Darwazeh, I., Lane, P.M., Marnane, W.P., Moreira, P., Capstick, M.H., and O'Reilly, J.J. see Darwazeh, I.
Watkins, L.R., Lane, P.M., and O'Reilly, J.J. see Lane, P.M.
Watson, D.B., and Barber, M.I. Image-processing technique for investigating dielectric breakdown trees **A** p79
Watson, N.R., Arrillaga, J., Sankar, S., and Arnold, C.P. see Arrillaga, J.
Webb, P.W., Walke, R.L., and Quigley, S.F. see Walke, R.L.
Weerasooriya, S., El-Sharkawi, M.A., Damborg, M., and Marks II, R.J. Towards static-security assessment of a large-scale power system using neural networks **C** p64
Weiglhofer, W.S., and Lakhtakia, A. see Lakhtakia, A.
Wells, E., Walczowski, L.T., and Waller, W.A.J. see Walczowski, L.T.
Wen, J., Ko, C.C., and Chin, F. see Ko, C.C.
Wendel, H., Herdeg, W.F., and Röde, B. see Herdeg, W.F.
Wesołowski, K., Zhao, C.M., and Rupprecht, W. Adaptive LMS transversal filters with controlled length **F** p233
Westreich, D. Improved Wolovich algorithm for determining state-space representations of linear multivariable polynomial systems **D** p267
Wey, C.-L. Concurrent error detection in array dividers by alternating input data **E** p123
Weyland, N.B.J., Johannessen, A.B., Prasad, R., and Bons, J.H. see Johannessen, A.B.
Wheeler, C.B. Influence of space charge on field emission of electrons from sharp edges **A** p169
Wheeler, J.C.G., and Peacock, A.J. see Peacock, A.J.
Whidborne, J.F. Performance in sampled data systems **D** p245
White, I.H., Constable, J.A., Coles, A.N., and Cunningham, D.G. see Constable, J.A.
Wicks, A., and Lawson, S.S. see Lawson, S.S.
Wieczorek, A., Blaumoser, M., Fink, R., Oswald, J., Schwarz, J., and Vögtle, K.H. Power supply and protection system for plasma stabilisation in the ASDEX Upgrade tokamak **B** p131
Wijesundera, D.S., and Jackson, R.D. Observers for field-oriented control of induction motor drives **B** p381
Wilcox, D.J., Hurley, W.G., McHale, T.P., and Conlon, M. Application of modified modal theory in the modelling of practical transformers **C** p513
Wilcox, D.J., and McHale, T.P. Modified theory of modal analysis for the modelling of multiwinding transformers **C** p505
Wilkes, D.M., and Liang, G. see Liang, G.
Wilkin, D., Munu, M., Harrison, I., and Woolfson, M.S. see Munu, M.
Wilkinson, R.J., and Kenington, P.B. Specification of error amplifiers for use in feedforward transmitters **G** p477
Willems, J., David, K., Morthier, G., and Baets, R. Investigation of a novel Bragg reflector: partly gain-coupled DBR filter **J** p53
Williams, K.J., Goldberg, L., and Esman, R.D. see Goldberg, L.
Williams, K.T., and Cooke, G.H. see Cooke, G.H.
Williams, R.A., Dickin, F.J., Hoyle, B.S., Hunt, A, Huang, S.M., Ilyas, O., Lenn, C., Waterfall, R.C., Xie, C.G., and Beck, M.S. see Dickin, F.J.
Williams, S., Kokkos, A., O'Reilly, J.J., and Popplewell, A. see Kokkos, A.
Williams, S., Popplewell, A., and O'Reilly, J.J. see Popplewell, A.
Willner, W., and Carlson, B.D. see Carlson, B.D.
Wilson, B., Ghassemlooy, Z., and Cheung, J.C.S. Optical pulse interval and width modulation for analogue fibre communications **J** p376
Winchester, T.A. Pulsed radar return from a chaff cloud **F** p315
Winternheimer, S., and Laska, B. Investigations on turn-off effects in fast-recovery power diodes by modelling and simulation **B** p55
Wong, K.-L., and Chen, H.-T. Electromagnetic scattering by a uniaxially anisotropic sphere **H** p314
Wong, K.M., Zhang, Q.T, and Haykin, S. see Zhang, Q.T
Wong, K.M., Zhang, Q.T., and Haykin, S. see Zhang, Q.T.
Wong, K.P., and Lau, B.S. Algorithm for load-shedding operations in reduced generation periods **C** p478
Wong, W.C., and Goodman, D.J. A packet reservation multiple access protocol for integrated speech and data transmission **I** p607
Wong, Y.C.A., and Shore, K.A. Analysis of two forms of gain nonlinearities on the dynamic response of a laser diode for high frequency applications **J** p243
Woodall, P., Lancaster, M.J., Maclean, T.S.M., Wu, Z., Porch, A., and Alford, N.NcN. see Lancaster, M.J.
Woods, R.F., and McCanny, J.V. Design of a high-performance IIR digital filter chip **E** p195
Woolfson, M.S., Munu, M., Harrison, I., and Wilkin, D. see Munu, M.
Wu, C.-W., and Lin, K.-J. see Lin, K.-J.
Wu, Chung-Yu, and Hwang, Jen-Sheng see Hwang, Jen-Sheng
Wu, J., Lee, Y.-H., Kao, M.-S., and Tsao, H.-W. see Lee, Y.-H.
Wu, J.-L., and Shiu, J. Real-valued error control coding by using DCT **I** p133
Wu, J.-L.C., Chang, Y.-J., and Ho, H.-J. see Chang, Y.-J.
Wu, Y.-C., and Chern, T.-L. see Chern, T.-L.
Wu, Y.-P., Chang, K.-S., Lu, S.-T., and Chou, C see Chang, K.-S.
Wu, Z., Lancaster, M.J., Maclean, T.S.M., Porch, A., Woodall, P., and Alford, N.NcN. see Lancaster, M.J.
Wu, Z., Lancaster, M.J., Maclean, T.S.M., and Huang, Y. see Lancaster, M.J.
Wyard, P.J., and Warren, N.P. Comparison of connectionist and traditional methods applied to phrase classification and grammaticality determination **F** p397
Wyatt, L.R., and Holden, G.J. see Holden, G.J.
Wyatt, L.R., and Holden, G.J. Developments in ocean wave measurement by HF radar **F** p170
Wyrzykowski, R. Processor arrays for matrix triangularisation with partial pivoting **E** p165
Wyrzykowski, R., and Ovramenko, S. Flexible systolic architecture for VLSI FIR filters **E** p170

X

Xiang, Q.R., and Sun, S.Q. see Sun, S.Q.
Xiao, C.-S., Feng, Z.-M., and Shan, X.-M. On the solution of the continuous-time Lyapunov matrix equation in two canonical forms **D** p286
Xiao, S., Cai, Z., Bornemann, J., and Vahldieck, R. see Cai, Z.
Xie, C.G., Dickin, F.J., Hoyle, B.S., Hunt, A, Huang, S.M., Ilyas, O., Lenn, C., Waterfall, R.C., Williams, R.A., and Beck, M.S. see Dickin, F.J.
Xie, C.G., Huang, S.M., Hoyle, B.S., Thorn, R., Lenn, C., Snowden, D., and Beck, M.S. Electrical capacitance tomography for flow imaging: system model for development of image reconstruction aigorithms and design of primary sensors **G** p89
Xie, C.G., Huang, S.M., Thorn, R., Snowden, D., and Beck, M.S. see Huang, S.M.
Xu, G.Y., Malik, O.P., Chen, G.P., Hope, G.S., and Qin, Y.H. see Malik, O.P.
Xu, L., Almaini, A.E.A., and Miller, J.F. see Almaini, A.E.A.
Xu, Y. Maximum likelihood erasure decoding scheme for concatenated codes **I** p336
Xu, Y., and Bosisio, R.G. Nondestructive measurements of the resistivity of thin conductive films and the dielectric constant of thin substrates using an open-ended coaxial line **H** p500
Xydeas, C.S., Li, X., and Ireton, M.A. see Li, X.

Y

Yahya, A.A., and Harry, J.E. see Harry, J.E.
Yamada, H., Fujiwara, T., and Oka, H. see Fujiwara, T.
Yamamoto, E., Hamada, M., Suda, K., Nogiwa, S., and Oki, T. Wavelength tuning characteristics of DFB lasers having twin-guide structures modulated by injection current or electric field **J** p24
Yamauchi, J., Ikegaya, M., and Nakano, H. Analysis of bent step-index optical fibres by the beam propagation method **J** p201
Yan, J.-T., and Hsiao, P.-Y. see Hsiao, P.-Y.
Yang, J., and Bond, L.J. Ultrasonic technique for sizing voids by using area functions **A** p45
Yang, J.-F., Ho, J.-C., and Kaveh, M. see Ho, J.-C.
Yang, T.-L., and Bor, S.-S. Monostatic radar cross-section spectra of a rotating-fan array, with tilted plate metal blades, in the PO/PTD approximation **H** p495
Yang, Y.-P., and Huang, K.-M. Adaptive lattice estimation and control of a manipulator with one flexible forearm **D** p237
Yee, H., Hu, X., and Ng, T.S. see Hu, X.
Yee, H., Ypsilantis, J., and Teo, C.-Y. see Ypsilantis, J.
Yehia, M., El-Hajj, A., and Kabalan, K.Y. see El-Hajj, A.
Yim, W.H., Coakley, F.P., and Evans, B.G. Extended polyphase structures for multirate DSP **F** p273
Yip, P.C.L., Lam, V.M.T., and Poole, C.R. see Lam, V.M.T.
Yoganandam, Y., and Das R, Jitedra see Das R, Jitedra
Yokozuka, T., and Baba, E. Force-displacement characteristics of linear stepping motors **B** p37
Yoon, T.-W., Song, J.-H., Kim, K.-H., Kim, K.-B., and Youn, M.-J. see Song, J.-H.
York, T.A., Srisuchinwong, B., Tsalides, Ph., Hicks, P.J., and Thanailakis, A. see Srisuchinwong, B.
Youn, M.-J., Song, J.-H., Yoon, T.-W., Kim, K.-H., and Kim, K.-B. see Song, J.-H.
Young, D.J., Lo, K.L., McDonald, J.R., Howard, R., and Rye, J. Development of a practical expert system for alarm processing **C** p437
Younis, A.T., and Massara, R.E. Automated synthesis of switched-capacitor ladder filters within an analogue silicon compilation environment **G** p249
Ypsilantis, J., Yee, H., and Teo, C.-Y. Adaptive, rule based fault diagnostician for power distribution networks **C** p461
Yu, J., Sandler, M.B., and Hawken, R.E. Adaptive quantisation for one-bit sigma-delta modulation **G** p39
Yuan, J., Ma, S., Zhou, H., and Chen, C.S. see Ma, S.
Yuan, J.S., and Liou, J.J. see Liou, J.J.
Yuh, H.J., and Mar, J. see Mar, J.
Yurkevich, V.D. Control of distributed parameter systems: localisation method **D** p141
Yurkevich, V.D. Control of parabolic systems on the basis of the localisation method **D** p511

Z

Zaglanikis, C.D., and Seeds, A.J. Computer model for semiconductor laser amplifiers with RF intensity-modulated inputs **J** p254
Zago, G., Pogliano, U., and Bosco, G.C. see Pogliano, U.
Zander, J., and Åhl, K.-A. Capacity of time-space switched cellular radio link systems for metropolitan area networks **I** p533
Zdravković, Z.S., and Vukelja, P.I. Switching overvoltages and risk of flashover on Yugoslav 400 kV transmission lines **C** p141
Zejia, Jiang, Jian, Huang, Jihui, Yu, and Bangding, Tau see Jian, Huang
Zeng, P.L., Lo, K.L., Marchand, E., and Pinkerton, A. see Lo, K.L.
Zhang, B.S., and Edmunds, J.M. Self-organising fuzzy logic controller **D** p460
Zhang, G., and McGee, W.F. Resonator based logarithmic filter banks **I** p36
Zhang, Q.T, Wong, K.M., and Haykin, S. New parametric method of detecting random signals in unknown noise. Part 2: Application to radar **F** p359
Zhang, Q.T., Wong; K.M., and Haykin, S. New parametric method of detecting random signals in unknown noise. Part 1: Asymptotic theory **F** p351
Zhang, X. Rapid determination of long generation lifetime **G** p1
Zhao, C.M., Wesołowski, K., and Rupprecht, W. see Wesołowski, K.
Zhao, Z., and Rowden, C.G Use of Kohonen self-organising feature maps for HMM parameter smoothing in speech recognition **F** p385
Zhou, H., Ma, S., Chen, C.S., and Yuan, J. see Ma, S.
Zhou, Y., Laybourn, P.J.R., Magill, J.V., and De La Rue, R.M. Completely buried planar waveguides fabricated in glass using a two-step purely thermal K^+ and Na^+ ion-exchange **J** p223
Zieniutycz, W., and Kildal, P.-S. Study of wall region and dielectric losses in a square hard horn **H** p139
Zingarelli, V., Benedetto, S., Biglieri, E., and Luvison, A. see Benedetto, S.
Ziogas, P.D., Prasad, A.R., and Manias, S. see Prasad, A.R.
Zirilli, F., Aluffi Pentini, F., and Farina, A. see Aluffi Pentini, F.
Žlahtič, F. Potential gradient measuring device based on a partial method **A** p174
Zomaya, A.Y., and Morris, A.S. Parallel computation of robot inverse dynamics for high speed motions **D** p226

Guide to Subject Index

Acoustics (*see* Acoustoelectric effects and Sound broadcasting and audio)
Acoustoelectric effects
Active networks
Actuators (*see* Transducers)
Adaptive control
Algebra (incl. Matrix algebra) (*see* Mathematical techniques)
Algorithms (*see* Mathematical techniques)
Amplifiers
Analogue computers and computation
Analogue-digital conversion
Antennas
Antennas (active)
Antennas (adaptive)
Antennas (aperture)
Antennas (arrays)
Antennas (dipole)
Antennas (frequency inpendent)
Antennas (horns and feeds)
Antennas (measurements)
Antennas (microstrip)
Antennas (millimetre wave)
Antennas (reflectors)
Antennas (slot)
Antennas (theory)
Antennas (time domain)
Antennas (travelling wave)
Antennas (wire)
Arcing
Attenuators (*see* Instrumentation and measuring science)
Audio (*see* Sound broadcasting and audio)
Avionics
Batteries and cells
Biological effects
Biomass
Biomedical applications
Bipolar transistors
Boolean algebra (*see* Logic)
Breakdown and gas discharges
Cables and overhead lines (*see* Coaxial cables)
Calibration (*see* Instrumentation and measuring science)
Charge-coupled devices
Choppers (*see* Control equipment and applications)
Circuit breakers and circuit breaking
Circuit theory and design
Closed-loop systems
Coaxial cables (*see* Cables and overhead lines)
Coaxial components
Codes and decoding
Commutation
Components
Computer applications
Computer graphics
Computer simulation
Computer-aided design
Conductors and conductivity
Control equipment and applications
Control systems
Control theory
Convertors
Crosstalk
Cybernetics and robotics
Decoding (*see* Codes and decoding)
Delay lines
Demodulation (*see* Modulation)
Design
Detection
Dielectric materials
Digital arithmetic (*see* Digital computers and computation)
Digital circuits
Digital communication systems
Digital computers and computation
Digital control (*see* Digital computers and computation)
Digital instrumentation (*see* Instrumentation and measuring science)
Digital-analogue conversion
Diodes
Discharges, electric (*see* Arcing)
Discharges, gas (*see* Breakdown and gas discharges)
Distribution networks (*see* Power transmission)
Doping
Earthing (*see* System protection)
Eddy currents
Education and training
Educational projects
Electric shock (*see* Hazards)
Electrical machines
Electromagnetic compatibility
Electromagnetic theory
Electron devices
Electronic circuits (*see* Circuit theory and design)
Energy conversion and storage
Engineering and society
Engineering administration and management
Epitaxy
Errors and error analysis
Fault detection
Fault location
Feedback
Ferrites and ferromagnetics
Ferromagnetics (*see* Ferrites and ferromagnetics)
Fibres, optical (*see* Optics)
Field-effect transistors
Filters and filtering
Financial management
Fuel cells (*see* Batteries and cells)
Generators
Graph theory and topology
Gunn devices
Hazards
History (*see* Reviews of progress)
Holography (*see* Optics)
Hydroelectric power generation
Hysteresis
Image processing
Induction motors
Industrial applications of power (*see* Power utilisation and industrial applications)
Information and communication theory
Instrumentation and measuring science
Insulators and insulation
Integrated circuits (*see* Circuit theory and design)
Integrated optics (*see* Optics)
Interface states
Interference (*see* Noise and interference)
Inverters (*see* Power electronics)
Ionisation (*see* Breakdown and gas discharges)
Ionospheric propagation (*see* Radio-wave propagation)
Lasers
Lighting
Lightning and lightning protection
Linear motors
Linear networks (*see* Networks)
Load and voltage regulation
Logic
Long-term planning
Magnetic devices and properties
Magnetic fields
Management
Manufacturing
Mathematical techniques
Matrix algebra (*see* Mathematical techniques)
Measurement and measuring (*see* Instrumentation and measuring science)
Metal-insulator-semiconductor structures
Metal-oxide-semiconductor structures
Microprocessors
Microscopes
Microstrip and stripline
Microwave active components
Microwave circuits and networks
Microwave communications
Microwave heating
Microwave integrated circuits
Microwave measurements
Microwave passive components
Microwave systems
Microwave tubes
Millimetre wave devices and components
Modelling (*see* Simulation)
Modulation
Monitoring
Motors (*see* Induction motors, Linear motors, Reluctance motors, Stepping motors, Synchronous motors)
Motors, induction (*see* Induction motors)
Motors, linear (*see* Linear motors)
Motors, reluctance (*see* Reluctance motors)
Motors, stepping (*see* Stepping motors)
Motors, synchronous (*see* Synchronous motors)
Multivariable control systems (*see* Control equipment and applications)
Natural resources
Networks (*see* Telephone exchanges and networks)
Noise and interference
Nondestructive testing
Nonlinear optics
Nonlinear systems
Numerical analysis
Optical amplifiers
Optical cables
Optical fibres (*see* Optics)
Optical materials
Optical processing (*see* Signal processing and optics)
Optical sensors
Optical switching
Optical systems (*see* Optics)
Optical transmission (*see* Optics)
Optical waveguides
Optics
Optimal control
Optimisation
Optoelectronics
Oscillators (*see* Semiconductor devices and materials)
Overhead lines (*see* Cables and overhead lines)
Overvoltages (*see* System protection)
Pattern recognition (*see* Picture processing and pattern recognition)
Permittivity
Perturbation theory
Phasing and phase control
Photodetectors
Physical properties
Picture processing and pattern recognition
Plant condition monitoring
Plasmas
Poles and zeros
Polynomials (*see* Mathematical techniques)
Power conversion (*See* Transformers)
Power electronics
Power system protection (*see* System protection)
Power systems and plant
Power transmission and distribution (*see* Transmission and distribution plant)
Power utilisation and industrial applications
Process control (*see* Control theory)
Product design
Production engineering (*see* Project and production engineering)
Project and production engineering (*See* Engineering administration and management)
Propogation in random media
Pulse-code modulation
Quantum electronics
Radar and radionavigation
Radiation
Radio astronomy
Radio waves (*see* Radio-wave propagation)
Radio-wave propagation (ground wave)
Radio-wave propagation (ionospheric)
Radio-wave propagation (microwave)
Radio-wave propagation (millimetre wave)
Radio-wave propagation (terrain effects)
Radio-wave propagation (tropospheric)
Radiocommunication
Radionavigation (*see* Radar and radionavigation)
Radomes
Railway electrification and transportation
Receivers
Relays (*see* system protection)
Reliability
Reluctance motors
Remote sensing
Reviews of progress
Robotics (*see* Cybernetics and robotics)
Satellite links and space communication
Schottky-barrier devices
Semiconductor devices and materials (*see* Diodes, Thyristors and Transistors)
Semiconductor lasers
Servomotors
Signal processing
Simulation
Social responsibility
Solar cells (*see* Energy conversion and storage)
Solar power
Sonics and ultrasonics
Sound broadcasting and audio
Space communication (*see* Satellite links and space communication)
Speech synthesis
Stabilisers (*see* Stability)
Stability
Standardisation and standards
Stepping motors
Submillimetre systems
Superconductivity
Surface-acoustic-wave devices (SAW)
Switches and switching theory
Switchgear
Synchronous generators (*see* Generators)

Synchronous motors
System protection
Telecommunication (*see* Radiocommunication)
Telecommunication traffic (*see* Telecommunication)
Telemetry
Telephone exchanges and networks
Telephony
Teletext
Television
Thyristors (*see* Semiconductor devices and materials)
Tidal power
Topology (*see* Graph theory and topology)
Torque (*see* Motors)
Traction (*see* Railway electrification and transportation)
Transducers
Transformers
Transients
Transistors (*see* Semiconductor devices and materials)
Transmission and distribution plant (*see* Power transmission and distribution)
Transmission lines
Transmitters
Transportation (*see* Vehicles and transportation)
Tropospheric propagation (*see* Radiowave propagation)
Turbogenerators (*see* Generators)
Ultrasonics (*see* Sonics and ultrasonics)
Underground cables (*see* Cables and overhead lines)
Vehicles and transportation
Very large scale integration
Vibration
Vocoders (*see* Voice communication)
Voice communication
Voltage regulators (*see* Load and voltage regulation)
Waveguides and waveguide components
Wave power
Wind power (*see* Energy conversion and storage)
X-rays

Subject index

ACOUSTOELECTRIC EFFECTS

New synthesis techniques for high order all-pole filters. M. Sandler **G** p9
Using the coherence function for noise reduction. R. Le Bouquin and G. Faucon **I** p276

ADAPTIVE CONTROL

Adaptive implementation of internal model principle for continuous time systems. G. Feng and M. Palaniswami **D** p167
Adaptive lattice estimation and control of a manipulator with one flexible forearm. Y.-P. Yang and K.-M. Huang **D** p237
Adaptive self-optimising pole shifting control algorithm. O.P. Malik, G.P. Chen, G.S. Hope, Y.H. Qin and G.Y. Xu **D** p429
Design of algorithms for spatial-time reduction complexity of dynamic programming. L. Moreno, L. Acosta and J.L. Sánchez **D** p172
Generalised predictive control (GPC) in the operating theatre. M. Mahfouf, D.A. Linkens, A.J. Asbury, W.M. Gray and J.E. Peacock **D** p404
Multirate adaptive inferential estimation. W. Lu and D.G. Fisher **D** p181
Optimising control of fermentation processes. C. Kambhampati, M.T. Tham, G.A. Montague and A.J. Morris **D** p60
Self-adaptive and self-organising control applied to nonlinear multivariable anaesthesia: a comparative model-based study. D.A. Linkens, M. Mahfouf and M. Abbod **D** p381

AMPLIFIERS

Active optical combiner switch. P.S. Mudhar, D.A.H. Mace, J. Singh, M.A. Fisher and M.J. Adams **J** p79
Balanced transconductance amplifier for precision comparison of AC/DC thermal current convertors. U. Pogliano, G.C. Bosco and G. Zago **A** p218
Bit error rate performance of FSK-distribution systems with SL preamplifiers. A.A. Al-Orainy **J** p361
Comparative study of some travelling-wave semiconductor laser amplifier models. L. Gillner **J** p339
Computer model for semiconductor laser amplifiers with RF intensity-modulated inputs. C.D. Zaglanikis and A.J. Seeds **J** p254
Crosstalk reduction in semiconductor laser amplifiers. M.E. Bray and J.E. Carroll **J** p93
Efficiency of feedforward amplifiers. P.B. Kenington **G** p591
Extended source and load operating noise temperatures of nonlinear systems. T. Larsen **H** p121
Modelling and settling times of amplifiers in SC circuits. A. Robertini and W. Guggenbühl **G** p131
Modulation properties of a near travelling-wave semiconductor laser amplifier. L. Gillner **J** p331
Multigigabit optically preamplified receiver designs with improved timing tolerance. C.R. Medeiros, R.S. Fyath and J.J. O'Reilly **J** p143
Nonlinear MOSFET model for the design of RF power amplifiers. G.A. Hoile and H.C. Reader **G** p574
Performance analysis of wavelength division- and subcarrier-multiplexing (WDM-SCM) transmission using fibre Brillouin amplification. Y.-H. Lee, J. Wu, M.-S. Kao and H.-W. Tsao **J** p272
Residual phase noise performance of X-band GaAs FET amplifiers at liquid nitrogen temperature. M. Mizan and R. McGowan **G** p37
Silicon-on-sapphire MOSFET model for analogue circuit simulation. R. Howes, W. Redman-White, K.G. Nichols, S.J. Murray and P.J. Mole **G** p33
Voltage-mode and current-mode Sallen-Key implementations based on translinear conveyors. A. Fabre and J.-L. Houle **G** p491

ANALOGUE COMPUTERS AND COMPUTATION

Analogue simulation of a DC brushless drive. E. Dallago and G. Sassone **B** p245
Go/no-go testing of analogue macros. M.A. Al-Qutayri and P.R. Shepherd **G** p534

ANALOGUE FILTERS

Computer-aided interactive filter design using templates. M.R. Frater and D.B. Pike **G** p277

ANALOGUE-DIGITAL CONVERSION

Analogue-to-digital convertor effects on airborne radar performance. B.N. Suresh Babu and C.M. Sorrentino **F** p73

ANTENNAS

Characteristics of small-aperture, single-layered, radial-line slot antennas. M. Takahashi, J. Takada, M. Ando and N. Goto **H** p79
Far-field computation from amplitude near-field data on two surfaces: cylindrical case. O.M. Bucci, G. D'Elia, G. Leone and R. Pierri **H** p143
New approach to antenna testing from near field phaseless data: the cylindrical scanning. T. Isernia, G. Leone and R. Pierri **H** p363
Plural hybrid mode multiflare conical horn with reduced cross polarisation and sidelobe levels. R.A. Nair **H** p385
Simple antenna for circular polarisation. K. Maamria and T. Nakamura **H** p157
Spectral domain analysis of aperture-coupled microstrip patch antennas. A.K. Bhattacharyya, Y.M.M. Antar and A. Ittipiboon **H** p459
Supercooled and superconducting small-loop and dipole antennas. M.J. Lancaster, Z. Wu, T.S.M. Maclean and Y. Huang **H** p264
Uniform GTD solution for the diffraction by metallic tapes on panelled compact-range reflectors. G.A. Somers and P.H. Pathak **H** p297

ANTENNAS (ADAPTIVE)

On the stationary points of the output power versus response zero performance surface in power inversion arrays. C.C. Ko, G. Balabhaskar and F. Chin **F** p199

ANTENNAS (APERTURE)

Beam-mode expansion applied to focal-region fields. J.W. Lamb **H** p513

ANTENNAS (ARRAYS)

Antenna pattern synthesis using weighted least squares. B.D. Carlson and W. Willner **H** p11
Coherent all-fibre optical beam-steering technique for phased-array antennas. M. Völker **J** p305
Dual polarisation antenna arrays with sequentiallly rotated feeding. P.S. Hall **H** p465
Fast Fourier transform techniques for solving the electric field integral equation for a periodic body. S.M. Wandzura, C.B. Thorington, R.S. Turley and L.R. Hamilton **H** p401
Iterative computation of current and field distributions in multilayer frequency selective surfaces. A. Stylianou, P. Debono and J.C. Vardaxoglou **H** p535
Optical beam forming techniques for phased array antennas. R. Benjamin and A.J. Seeds **H** p526
Phased array control using phase-locked-loop phase shifters. A.W. Houghton and P.V. Brennan **H** p31
Proof-of-concept model of a coherent optical beam-forming network. W.S. Birkmayer and M.J. Wale **J** p301
Quasibistatic random arrays. G. Galati, S. Perna and M. Abbati **F** p193
Reconstruction of the excitation of an array antenna from the measured near-field intensity using phase retrieval. J.A. Lord, G.G. Cook and A.P. Anderson **H** p392
Systematic approach to control feed scattering and multiple reflections in symmetrical primary-fed reflector antennas. A. Moldsvor and P.-S. Kildal **H** p65

ANTENNAS (HORNS AND FEEDS)

Study of wall region and dielectric losses in a square hard horn. W. Zieniutycz and P.-S. Kildal **H** p139

ANTENNAS (MICROSTRIP)

Analysis of biconical microstrip antennas. Y. Lin and L. Shafai **H** p483
Analysis of triangular patch antennas including radome effects. H.R. Hassani and D. Mirshekar-Syahkal **H** p251
Computer simulation of multimicrostrip patches antenna problem. E. Tonye, J.-B. Temdenou and J. Ntonme **H** p59
Full wave analysis for the equivalent circuit of an inclined slot on a microstrip ground plane. A.K. Bhattacharyya, Y.M.M. Antar and A. Ittipiboon **H** p245
Radiation pattern computation of microstrip antennas on finite size ground planes. S.A. Bokhari, J.R. Mosig and F.E. Gardiol **H** p278
Use of subsectional edge expansion functions (SEEFs) to analyse rectangular microstrip antennas with the method of moments. G.A.E. Vandenbosch and A.R. Van de Capelle **H** p159

ANTENNAS (REFLECTORS)

Compact-scan, plane-polar microwave holographic technique for reflector antenna profile measurement. C.L. Grattan **H** p91
Compound reflector antennas. C.K. Lee, R.J. Langley and E.A. Parker **H** p135
Correction to 'short-pulse excitation of reflector antennas'. R.C. Hansen and E. Kramer **H** p119

ANTENNAS (SLOT)

Analysis of a dielectric resonator antenna in a cylindrical conducting cavity: TE and TM modes. X. Di, A.W. Glisson and K.A. Michalski **H** p453
Characteristics of small-aperture, single-layered, radial-line slot antennas. M. Takahashi, J. Takada, M. Ando and N. Goto **H** p79

ANTENNAS (WIRE)

Entire domain Galerkin method for analysis of generalised wire antennas and scatterers. B.M. Kolundžija and B.D. Popović **H** p17

ARCING

Analysis and comparison of rod–plane and rod–rod gaps as direct voltage measurement devices. N.L. Allen, M. Boutlendj, R.C. Hughes, H.A. Lightfoot and R.B. Neville **A** p279
Analysis of partial discharge pulse distribution along transformer windings using digital filtering techniques. Q. Su and R.E. James **C** p402
Conditions for coalescence of multiple electric discharges. J.E. Harry and A.A. Yahya **A** p210
Corona discharge streamer model. T.T. Nguyen **C** p31
Mathematical model of dry-band arcing on self-supporting, all-dielectric, optical cables strung on overhead power lines. C.N. Carter and M.A. Waldron **C** p185
Temperature measurements of polymer substrates (PMMA) in an RF discharge. R. Rochotzki and M. Friedrich **A** p61

ARRAY PROCESSING

Adaptive null-steering algorithm for separating multiple directional sources in linear power-inversion arrays. C.C. Ko, J. Wen and F. Chin **H** p477
Antenna pattern synthesis using weighted least squares. B.D. Carlson and W. Willner **H** p11
Direction-of-arrival and frequency estimations for narrowband sources using two single rotation invariance algorithms with the marked subspace. Y.-H. Chen and C.-H. Chen **F** p297
Flexible systolic architecture for VLSI FIR filters. R. Wyrzykowski and S. Ovramenko **E** p170
Full systolic binary multiplier. J. Arechabala, E.I. Boemo, J. Meneses, F. Moreno and C. Lopez Barrio **G** p188
Highly parallel representations for linear maps. J.L. Aravena and W.A. Porter **E** p173
Importance of the exclusion of the desired signal from the control of a generalised sidelobe canceller. K. Takao and C.S. Boon **F** p265
Improved rooting method for source localisation. J.A. Marks and K.M. Buckley **F** p321
Linear antenna array design with partial adaptivity. M.H. Er and B.C. Ng **H** p25
On the stationary points of the output power versus response zero performance surface in power inversion arrays. C.C. Ko, G. Balabhaskar and F. Chin **F** p199
Parallel adaptive rooting algorithm for general frequency estimation and direction finding. J.-C. Ho, J.-F. Yang and M. Kaveh **F** p43
Performance trade-offs of globally clocked data-driven arrays. A. Spray and S. Jones **G** p527
Phased array control using phase-locked-loop phase shifters. A.W. Houghton and P.V. Brennan **H** p31

Processor arrays for matrix triangularisation with partial pivoting. R. Wyrzykowski E p165
Resolution of coherent sources in power inversion arrays with a fast zero tracking algorithm. C.C. Ko I p45
Some aspects of array signal processing. S. Haykin, J.P. Reilly, V. Kezys and E. Vertatschitsch F p1

BIOLOGICAL EFFECTS

Biological cell alignment for electrofusion. S.J. MacDonald, P.S. Bodger and P.A. Elder A p112

BIOMEDICAL APPLICATIONS

Analysis of the sleep EEG using a multilayer network with spatial organisation. S. Roberts and L. Tarassenko F p420
Generalised predictive control (GPC) in the operating theatre. M. Mahfouf, D.A. Linkens, A.J. Asbury, W.M. Gray and J.E. Peacock D p404

BREAKDOWN AND GAS DISCHARGES

Analysis and comparison of rod–plane and rod–rod gaps as direct voltage measurement devices. N.L. Allen, M. Boutlendj, R.C. Hughes, H.A. Lightfoot and R.B. Neville A p279
Corona discharge streamer model. T.T. Nguyen C p31
Microwave breakdown in a point-to-plane electrode gap. P.S. Excell A p89

CABLES AND OVERHEAD LINES

Cathodic protection of extended buried conductor networks: a new design method. F. Tosato and S. Quaia B p443
Effect of mixed convection on the external thermal resistance of single-core and multicore bundled cables in air. V.T. Morgan C p109
Efficient inverse Laplace transform algorithm for transient overvoltage calculation. A. Ahmad, P. Johannet and Ph. Auriol C p117
External thermal resistance of power cable in nonuniform soil. P. Slaninka and V.T. Morgan A p117
Mathematical model of dry-band arcing on self-supporting, all-dielectric, optical cables strung on overhead power lines. C.N. Carter and M.A. Waldron C p185
Real-time expert system for fault location on high voltage underground distribution cables. K.K. Kuan and K. Warwick C p235

CIRCUIT BREAKERS AND CIRCUIT BREAKING

High-voltage line-dropping switching stresses. A.D. Stokes C p21

CIRCUIT THEORY AND DESIGN

Adaptive learning circuit based on the Walsh transform. V.G. Endean G p23
Associative memory integrated circuit based on neural mutual inhibition. S.M.S. Jalaleddine and L.G. Johnson G p445
Behavioural synthesis support system for undergraduate teaching. J. Ainscough, D.M. Southall, S. Oakey and A. Goodwin G p149
Characterisation of GaAs FET and HEMT chips and packages for accurate hybrid circuit design. J.P. Bridge, P.H. Ladbrooke and A.J. Hill H p330
Class of undetectable stuck-open branches in CMOS memory elements. A. Rubio, S. Kajihara and K. Kinoshita G p503
Clockless synchronisation of distributed concurrent processes. D.M. Taub E p88
Comparative assessment of zero voltage switched off-line power convertor topologies. W.J.B. Heffernan and P.D. Evans B p71
Complex gyrator circuit of junction circulators using weakly magnetised ring resonators. J. Helszajn and W.T. Nisbet H p319
Design of an analogue subthreshold multiplier suitable for implementing an artificial neural network. R.L. Walke, S.F. Quigley and P.W. Webb G p261
Distortion power in systems with nonsinusoidal voltage. L.S. Czarnecki B p276
Equivalent circuit of a cavity coupled to a feeding line and its dependence on the electric or magnetic nature of output coupling structure. P. Couffignal, J. Obregon and H. Baudrand H p221
Generalised approach to automatic custom layout of analogue ICs. D.J. Chen and B.J. Sheu G p481
Implementation of an IC design teaching course. P.R. Shepherd and J.D. Martin G p161
Low-voltage BICMOS vertical OTA. J. Ramírez-Angulo G p553
New partial scan design based on hard fault distribution analysis. P.-C. Chen, B.-D. Liu, J.-F. Wang and C.-P. Chen E p457
Parameter identification approach to fault diagnosis of switched capacitor circuits. A.E. Salama and F.Z. Amer G p467
Performance prediction and function recovery of CMOS circuits damaged by Co-60 irradiation. K.-S. Chang-Liao and J.-G. Hwu G p319
Pulse multiplication in parallel convertors by multitap control of interphase reactor. M.E. Villablanca and J. Arrillaga B p13
Reduced-order models of 2-D linear discrete separable-denominator system using bilinear Routh approximations. T.-Y. Guo, C. Hwang, L.-S. Shieh and C.-H. Chen G p45
Silicon-on-sapphire MOSFET model for analogue circuit simulation. R. Howes, W. Redman-White, K.G. Nichols, S.J. Murray and P.J. Mole G p33
Simple analytical model for short-channel MOS devices. H.-C. Chow, W.-S. Feng and J.B. Kuo G p405
Structured knowledge manipulation system for real-time engineering applications. S. Hudson and J.M. Hannah E p59
Time-range reasoning for microprocessor systems diagnosis: a probabilistic extension. K.P. Lam E p308
Towards static-security assessment of a large-scale power system using neural networks. S. Weerasooriya, M.A. El-Sharkawi, M. Damborg and R.J. Marks II C p64
Universal architecture for matrix transposition. S. Panchanathan E p387

CLOSED-LOOP SYSTEMS

Autonomous wind energy conversion system with a simple controller for maximum-power transfer. M. Ermiş, H.B. Ertan, E. Akpınar and F. Ülgüt B p421
Uncertainty modelling and structured singular-value computation applied to an electromechanical system. M. Steinbuch, J.C. Terlouw, O.H. Bosgra and S.G. Smit D p301

COAXIAL CABLES

Computer generated equivalent circuit models for coaxial-line offset open circuits. N.M. Ridler, J.C. Medley, A.J. Baden Fuller and M. Runham A p229
Leakage from coaxial cables. F.A. Benson, P.A. Cudd and J.M. Tealby A p285

COAXIAL COMPONENTS

Finite difference method and Pspice simulation applied to the coaxial cable in a linear temperature gradient. H. Mokhtari, A. Nyeck, C. Tosser-Roussey and A. Tosser-Roussey A p39
Use of open-ended coaxial line sensor with a laminar or liquid dielectric backed by a conducting plane. S. Jenkins, A.G.P. Warham and R.N. Clarke H p179

CODES AND DECODING

Architectures for fast encoding and error detection of cyclic codes. A. Popplewell, J.J. O'Reilly and S. Williams I p340
Asymmetric modulation indices in full/partial response multi-H phase-coded modulations with different phase pulse functions. L.-S. Lee, H.-K. Hwang and S.-H. Chen I p508
BER performance analysis of 4-CCL and 5-CCL codes in slotted indoor CDMA systems. X.-H. Chen and J. Oksman I p79
Capacity and coding for memories with real-time noisy defect information at encoder and decoder. M. Salehi I p113
Coding efficiency of multiring differential chain coding. A.B. Johannessen, R. Prasad, N.B.J. Weyland and J.H. Bons I p224
Computationally simple ADPCM based on exponential power estimator. G. Mathew, S.V. Narasimhan and A.P. Shivaprasad I p53
Cryptographic master-key-generation scheme and its application to public key distribution. T. Kiesler and L. Harn E p203
Decoding complement-closed codes with coordinate-disjoint decomposition. S. Ma, H. Zhou, C.S. Chen and J. Yuan I p488
Decoding delays of orchard codes. J. Lee and A. Shiozaki I p413
Evaluation of a class of error control line codes: an error performance perspective. A. Kokkos, J.J. O'Reilly, A. Popplewell and S. Williams I p128
Image sequence coding using adaptive tree-structured vector quantisation with multipath searching. R.F. Chang, W.T. Chen and J.S. Wang I p9
Integration of user authentication and access control. L. Harn and H.-Y. Lin E p139
Low bit-rate image sequence coding using spatial decomposition. P.J. Cordell and R.J. Clarke I p575
Maximum likelihood erasure decoding scheme for concatenated codes. Y. Xu I p336
Note on the complete decoding of Kerdock codes. M. Elia, C. Losana and F. Neri I p24
On transform coding of motion-compensated difference images. R.J. Clarke I p372
Packet-based embedded encoding for transmission of low-bit-rate-encoded speech in packet networks. M.M. Lara-Barron and G.B. Lockhart I p482
Performance evaluation of pragmatic TCM codes through band-limited nonlinear satellite channel: a computer simulation approach. V.K. Dubey, N.K. Lim and E. Gunawan I p15
Performance of 8-PSK trellis codes over nonlinear fading mobile satellite channels. B. Vucetic and J. Nicolas I p462
Performance of MPSK trellis-coded modulation in Rayleigh fading with an imperfect phase reference. K.Y. Chan and A. Bateman I p329
Probability of frame synchronisation failure for binary and complex-valued sequences. W. Henkel and P. Keller I p29
Pyramid transform coding. L. Wang and M. Goldberg I p364
Real-valued error control coding by using DCT. J.-L. Wu and J. Shiu I p133
Remote password authentication with smart cards. C.C. Chang and C.S. Laih E p372
Runlength limited binary error control codes. A. Popplewell and J.J. O'Reilly I p349
Transmission of digitally encoded speech at 1.2 Kbaud for PCN. L. Hanzo, R. Salami, R. Steele and P.M. Fortune I p437
Word-based dynamic algorithms for data compression. J. Jiang and S. Jones I p582

COMMUNICATION SYSTEMS THEORY

Asymmetric modulation indices in full/partial response multi-H phase-coded modulations with different phase pulse functions. L.-S. Lee, H.-K. Hwang and S.-H. Chen I p508
Correctness analysis for class of asynchronous communication mechanisms. H.R. Simpson E p35
Jitter analysis of a phase-locked digital timing recovery system. E. Panayirci I p267
Maximum *a posteriori* decision feedback detection. G.W. Pulford and R.A. Kennedy I p546
Monte Carlo simulation of direct sequence spread spectrum for indoor radio communication in a Rician fading channel. H.S. Misser, A. Kegel and R. Prasad I p620
Multiple hops/symbol fast frequency-hopping spread spectrum multiple access with coding for indoor radio. M. Moeneclaey and J. Wang I p95
Optimal virtual circuit routing in computer networks. Y.-J. Chang, J.-L.C. Wu and H.-J. Ho I p625
Performance analysis of bridged LANs. R. Ahmad and F. Halsall E p64
Performance analysis of interconnected CSMA/CD local area networks. E.D. Sykas and G.L. Lyberopoulos I p181
Performance of 8-PSK trellis codes over nonlinear fading mobile satellite channels. B. Vucetic and J. Nicolas I p462
Photonics in switching: the next 25 years of optical communications?. J.E. Midwinter J p1
Scheduling delay protocols integrating voice and data on a bus LAN. S. Bolis, E.G. Economou and G. Philokyprou I p407
Slotted ALOHA land-mobile radio networks with site diversity. J.-P.M.G. Linnartz I p58
Teletraffic performance of microcellular personal communication networks. R. Steele and M. Nofal I p448
Throughput efficiency and queueing analysis of generalised stop-and-wait ARQ protocols. R. Fantacci I p251
Time characteristics of IEEE 802.4 token bus protocol. P. Montuschi, L. Ciminiera and A. Valenzano E p81
Time-of-arrival-based retransmission scheduling for unslotted random access channels. D. Raychaudhuri I p303

COMMUTATION

Slotless armature DC machines with multiplex connection. M.N. Hamlaoui and E. Spooner **B** p175

COMPUTER APPLICATIONS

Chronic disease management supported by informatics: example diabetes. I.D. Nussey **A** p153
Computer-based optimisation techniques for mass transit railway signalling design. D.C. Gill and C.J. Goodman **B** p261
Corrected settling time of the distributed parallel arbiter. D.M. Taub **E** p348
Designing a complementary design rule checker based on a binary balanced quad list quad tree. P.-Y. Hsiao and J.-T. Yan **E** p311
KBIF: a frame system capable of performing inexact reasoning involving various inexactness factors. C.-S. Ho **E** p280
MARS: a RISC based multiple function units Lisp machine. H.-C. Lee, F. Lai and T.-M. Parng **E** p410
Structured knowledge manipulation system for real-time engineering applications. S. Hudson and J.M. Hannah **E** p59
Time-range reasoning for microprocessor systems diagnosis: a probabilistic extension. K.P. Lam **E** p308
Two-/multi-action discretised learning routine algorithms in interaction with threshold-based flow control for computer networks. A.V. Vasilakos, C.T. Paximadis and C.A. Moschonas **E** p93
Two-level state estimation for large power system. Part 1: Algorithms and Part 2: Computational experience. M.S. Kurzyn **C** p175

COMPUTER SIMULATION

Computer model for semiconductor laser amplifiers with RF intensity-modulated inputs. C.D. Zaglanikis and A.J. Seeds **J** p254
Computer simulation of multimicrostrip patches antenna problem. E. Tonye, J.-B. Temdenou and J. Ntonme **H** p59
Educational tool for design of parallel processing systems. H.B. Diab and H.S. Tabbara **A** p1
Interturn voltages in machine windings evaluated from on-site test results and computer simulation. K.J. Cornick, J.L. Guardado and P. Bekaert **B** p238
Modelling of optical logic gates for computer simulation. J.J. Morikuni, D.S. Gao and S.M. Kang **J** p105
Power supply and protection system for plasma stabilisation in the ASDEX Upgrade tokamak. A. Wieczorek, M. Blaumoser, R. Fink, J. Oswald, J. Schwarz and K.H. Vögtle **B** p131
Pyramid transform coding. L. Wang and M. Goldberg **I** p364
Simple and direct computer simulation of continuous-mode resonant convertors in steady state. R. Rabinovici and B.Z. Kaplan **G** p411

COMPUTER-AIDED DESIGN

Improved nonlinear model for multisignal analysis of helix TWTs. V. Srivastava and S.N. Joshi **H** p129
Intelligent advisory system for achieving diagonal dominance. J. Huang and N. Munro **D** p41
The UK ECAD initiative 1986–1991: an appraisal. P.L. Jones **G** p143
VLSI design and CAE at Exeter University. R. Cobley **G** p183

CONDUCTORS AND CONDUCTIVITY

Characteristic modes of a slot in a conducting cylinder and their use for penetration and scattering: TM case. K.Y. Kabalan, A. El-Hajj and R.F. Harrington **H** p287
Nondestructive measurements of the resistivity of thin conductive films and the dielectric constant of thin substrates using an open-ended coaxial line. Y. Xu and R.G. Bosisio **H** p500

CONTROL EQUIPMENT AND APPLICATIONS

Comparison of two control strategies in development of high-torque electronically commutated drive. T.S. Low, K.W. Lim, M.F. Rahman and K.J. Binns **B** p26
Design of servocontroller via the sliding mode technique. C.L. Hwang **D** p439
Intelligent advisory system for achieving diagonal dominance. J. Huang and N. Munro **D** p41
Uncertainty modelling and structured singular-value computation applied to an electromechanical system. M. Steinbuch, J.C. Terlouw, O.H. Bosgra and S.G. Smit **D** p301

CONTROL SYSTEMS

Approximating irrational transfer functions using Lagrange interpolation formula. P.D. Olivier **D** p9
Architecture for integrated process supervision. R. Leitch and C. Quek **D** p317
Class of stabilising decentralised controllers for interconnected dynamical systems. M. Aldeen **D** p125
Connectionist approach to PID autotuning. A.E.B. Ruano, P.J. Fleming and D.I. Jones **D** p279
Development of a practical expert system for alarm processing. D.J. Young, K.L. Lo, J.R. McDonald, R. Howard and J. Rye **C** p437
Electronic design automation (EDA) techniques for the design of power electronic control systems. E.B. Patterson, P.G. Holmes and D. Morley **G** p191
Frequency smoothing using Laguerre model. W.R. Cluett and L. Wang **D** p88
Generalisation of conditioning techniques for anti-windup compensators. K.S. Walgama, S. Rönnbäck and J. Sternby **D** p109
Identification of linear time-invariant systems from frequency-response data corrupted by bounded noise. G. Gu and P. Misra **D** p135
Nearly decoupled robust MIMO control systems design. M.H. Perng and T.S. Lee **D** p53
Note on single-term Walsh series method for singular systems. K. Balachandran and K. Murugesan **D** p347
Observers for field-oriented control of induction motor drives. D.S. Wijesundera and R.D. Jackson **B** p381
Optimal controller placements in large-scale linear systems. H.-D. Chiang, J.S. Thorp, J.-C. Wang, J. Lu and B. Aubert **D** p79
Performance in sampled data systems. J.F. Whidborne **D** p245
Robust speed control of a pump-controlled motor system. Y. Jen and C. Lee **D** p503
Robust stabilisation of multivariable feedback systems with desired performance requirement. M.-H. Tu and C.-M. Lin **D** p259
Stability of steady-state optimising control systems. J. Lin, I. Gionas and P.D. Roberts **D** p481
Synthesis of pole-zero assignment control law with minimum control input. M.-H. Tu and C.-M. Lin **D** p291
Unified power-flow control concept for flexible AC transmission systems. L. Gyugyi **C** p323

CONTROL THEORY

Adaptive implementation of internal model principle for continuous time systems. G. Feng and M. Palaniswami **D** p167
Adaptive self-optimising pole shifting control algorithm. O.P. Malik, G.P. Chen, G.S. Hope, Y.H. Qin and G.Y. Xu **D** p429
CGPC with guaranteed stability properties. H. Demircioğlu and D.W. Clarke **D** p371
Control of parabolic systems on the basis of the localisation method. V.D. Yurkevich **D** p511
Gain/phase decomposition and generalised predictive control of scalar systems. B. Kouvaritakis, J.A. Rossiter and A.O.T. Chang **D** p97
Graph-theoretic decoupling technique for the design of synchronous generator controllers. L. Carnimeo, M.P. Fanti, M. Trovato and B. Turchiano **D** p337
Integral variable structure control approach for robot manipulators. T.-L. Chern and Y.-C. Wu **D** p161
Note on single-term Walsh series method for singular systems. K. Balachandran and K. Murugesan **D** p347
On the solution of the continuous-time Lyapunov matrix equation in two canonical forms. C.-S. Xiao, Z.-M. Feng and X.-M. Shan **D** p286
Operating restrictions for third harmonic control of flux in induction machines. G.A. Covic and J.T. Boys **B** p485
Optimal setting for discrete PID controllers. K. Minh Vu **D** p31
Rotor flux observation and control in squirrel-cage induction motor: reliability with respect to parameters variations. X. Roboam, C. Andrieux, B. De Fornel and J.C. Hapiot **D** p363
Simple algorithm for robust pole assignment in linear output feedback. G.-R. Duan **D** p465
Stabilising controller and observer synthesis for uncertain large-scale systems by the Riccati equation approach. W.-J. Wang and C.-F. Cheng **D** p72
Stability of steady-state optimising control systems. J. Lin, I. Gionas and P.D. Roberts **D** p481
Stable generalised predictive control: an algorithm with guaranteed stability. B. Kouvaritakis, J.A. Rossiter and A.O.T. Chang **D** p349
Theoretical aspects of control of synchronous reluctance machines. R.E. Betz **B** p355
Uncertainty modelling and structured singular-value computation applied to an electromechanical system. M. Steinbuch, J.C. Terlouw, O.H. Bosgra and S.G. Smit **D** p301
Use of bicausal weighting sequences in least squares identification of open-loop unstable dynamic systems. B. Kouvaritakis and J.A. Rossiter **D** p328
Youla parameterised two and a half degrees of freedom LQG controller and robustness improvement cost weighting. M.J. Grimble **D** p147

CONVERTORS

Analysis, design and implementation of the space-vector modulator for forced-commutated cycloconvertors. L. Huber, D. Borojević and N. Burány **B** p103
Balanced transconductance amplifier for precision comparison of AC/DC thermal current convertors. U. Pogliano, G.C. Bosco and G. Zago **A** p218
Calculation of harmonic currents in a three-phase convertor with unbalanced power supply conditions. M. Sakui and H. Fujita **B** p478
Characteristics of unit-connected HVDC generator–convertors operating at variable speeds. J. Arrillaga, S. Sankar, C.P. Arnold and N.R. Watson **C** p295
Comparative assessment of zero voltage switched off-line power convertor topologies. W.J.B. Heffernan and P.D. Evans **B** p71
Constant frequency, two-stage quasiresonant convertor. K.W.E. Cheng and P.D. Evans **B** p227
Double-output induction generator operating at subsynchronous and supersynchronous speeds: steady-state performance optimisation and wind-energy recovery. I. Çadirci and M. Ermiş **B** p429
Dynamic characteristics of the class E DC/DC convertor using sampled-data modelling. A.J. Forsyth, S.H. Ma and Y.T. Leung **B** p409
Family of saturable reactor assisted soft-switching PWM DC–DC convertors. S. Hamada and M. Nakaoka **B** p395
Modelling and design of a single phase AC to DC convertor. T.-C. Chen and C.-T. Pan **B** p465
New ZVS-PWM inverter switching limits and operating area. M. Metz, J. Roux, S. Ben Doua, J.P. Arches and H. Foch **B** p86
New approach for the analysis of a three-phase induction motor of different ratings connected to a single-phase supply. M.H. El-Maghraby, R.H. Thejel and M.M. Ibrahim **B** p145
Novel A/D convertor with median filtering of programmable window length. B.D. Liu, C.S. Tsay, C.H. Chen and R.L. Fuh **G** p621
Power supply and protection system for plasma stabilisation in the ASDEX Upgrade tokamak. A. Wieczorek, M. Blaumoser, R. Fink, J. Oswald, J. Schwarz and K.H. Vögtle **B** p131
Resistively variable capacitors using general impedance convertors. A. Carlosena, D. Müller and G.S. Moschytz **G** p507
Simple and direct computer simulation of continuous-mode resonant convertors in steady state. R. Rabinovici and B.Z. Kaplan **G** p411
Static- and dynamic-circuit models of PWM buck-derived DC–DC convertors. D. Czarkowski and M.K. Kazimierczuk **G** p669
Steady-state analysis of a doubly fed asynchronous machine supplied by a current-controlled cycloconvertor in the rotor. M. Machmoum, R. Le Doeuff, F.M. Sargos and M. Cherkaoui **B** p114
Synthesis of phase-modulated resonant DC/AC inverters and DC/DC convertors. M.K. Kazimierczuk **B** p387

CROSSTALK

Crosstalk tolerant latch circuit. A. Rubio, J. Pons and R. Anglada **G** p5

CYBERNETICS AND ROBOTICS

Neural control of locomotion in a quadrupedal robot. O.E. Holland and M.A. Snaith **F** p431
Orientation planning in continuous path applications for wrist partitioned manipulators. S.D. Voliotis **D** p495

Parallel computation of robot inverse dynamics for high speed motions. A.Y. Zomaya and A.S. Morris **D** p226
Sliding mode control of an electrically powered industrial robot. S.R. Habibi and R.J. Richards **D** p207

DESIGN

CGPC with guaranteed stability properties. H. Demircioğlu and D.W. Clarke **D** p371
Characteristics of small-aperture, single-layered, radial-line slot antennas. M. Takahashi, J. Takada, M. Ando and N. Goto **H** p79
Electronic design automation (EDA) techniques for the design of power electronic control systems. E.B. Patterson, P.G. Holmes and D. Morley **G** p191
Generation, design and tuning of OTA-C high-frequency sinusoidal oscillators. B. Linares-Barranco, A. Rodríguez-Vázquez, E. Sánchez-Sinencio and J.L. Huertas **G** p557
Simple antenna for circular polarisation. K. Maamria and T. Nakamura **H** p157
Simple methods for the design of 2D recursive digital filters with noncircular cutoff boundary. M. Ahmadi, A. Mazinani, M. Shridhar and V. Ramachandran **G** p427

DETECTION

Adaptive censored greatest-of CFAR detection. S.D. Himonas **F** p247
Analogue-to-digital convertor effects on airborne radar performance. B.N. Suresh Babu and C.M. Sorrentino **F** p73
Analytic comparison of four robust algorithms for post-detection integration. N. Levanon **F** p67
Modelling peak shapes obtained by Hough transform. E.R. Davies **E** p9

DIELECTRIC MATERIALS

Design of millimetre wave dielectric resonators for integrated circuits. A.E. Centeno and G.B. Morgan **H** p307
Effect of barriers on the growth of trees in solid insulation. D.W. Auckland, S.M.F. Kabir and B.R. Varlow **A** p14
Electrostatic image theory for layered dielectric sphere. I.V. Lindell, M.E. Ermutlu and A.H. Sihvola **H** p186
Fictitious absorber for truncating finite element meshes in scattering. J.-M. Jin, J.L. Volakis and V.V. Liepa **H** p472
Mathematical model of dry-band arcing on self-supporting, all-dielectric, optical cables strung on overhead power lines. C.N. Carter and M.A. Waldron **C** p185
Nondestructive measurements of the resistivity of thin conductive films and the dielectric constant of thin substrates using an open-ended coaxial line. Y. Xu and R.G. Bosisio **H** p500
Numerical solution to three-dimensional inverse scattering for dielectric reconstruction purposes. S. Caorsi, G.L. Gragnani and M. Pastorino **H** p45
Phase shifters for dielectric guides. R.J. Collier and M.F. D'Souza **H** p202
Reflection of the surface mode from an abrupt-ended dielectric tube waveguide. A.B. Manenkov **J** p194
Study of wall region and dielectric losses in a square hard horn. W. Zieniutycz and P.-S. Kildal **H** p139
Theoretical and experimental resonant frequencies of rectangular dielectric resonators. R.K. Mongia **H** p98
Three-pole dielectric resonators microwave bandpass active filter. B. Madrangeas, B. Jarry, P. Guillon, J. Larroque, B. Theron and D. Parise **H** p205
Vector modes of D-shaped fibres. D. Marcuse, F. Ladouceur and J.D. Love **J** p117

DIGITAL CIRCUITS

Diagnosis of multiple faults in combinational digital circuits by modelling of transition propagation along critical paths. S.J. Sangwine **G** p594
Digital generation of high time-bandwidth product linear FM waveforms for radar altimeters. H.D. Griffiths and W.J. Bradford **F** p160
Jitter analysis of a phase-locked digital timing recovery system. E. Panayirci **I** p267
Switch-level fault detection and diagnosis environment for MOS digital circuits using spectral techniques. G. Ruiz, J. Michell and A. Burón **E** p293
Very-high-speed VLSI 2s-complement multiplier using signed binary digits. W. Balakrishnan and N. Burgess **E** p29

DIGITAL COMMUNICATION SYSTEMS

DIRECS: system design of a 100 Mbit/s digital receiver. O. Joeressen, M. Oerder, R. Serra and H. Meyr **G** p222
High-performance bit-serial adders and multipliers. G. Bi and E.V. Jones **G** p109
Maximum-likelihood synchronisation algorithms for Q^2PSK. V. Acha and R.A. Carrasco **I** p597
Moment-based performance evaluation of digital transmission systems. S. Benedetto, E. Biglieri, A. Luvison and V. Zingarelli **I** p258
Multipath propagation effects on digital radio equipped with a plane reflector repeater. Y. Serizawa, Y. Watanabe and S. Takeshita **I** p176
On the achievable information rates of DPSK. G. Kaplan and S. Shamai **I** p311
Performance evaluation of Rayleigh and log-normal GMSK signals in the presence of cochannel interference. P.P.S. Carter and A.M.D. Turkmani **I** p156
Probability of frame synchronisation failure for binary and complex-valued sequences. W. Henkel and P. Keller **I** p29

DIGITAL COMPUTERS AND COMPUTATION

Bi-way sorter: a two-dimensional systolic array. G.A. Orton, L.E. Peppard and S.G. Akl **E** p147
Highly parallel representations for linear maps. J.L. Aravena and W.A. Porter **E** p173
Noise analysis for digit slicing FFT (Reply). L. Stanković and R. Puzović **F** d278
Noise analysis for digit slicing FFT. Z.A.M. Sharrif, M. Othman and T.S. Theong **F** d278
VLSI module for high-performance multiply, square root and divide. S.E. McQuillan and J.V. McCanny **E** p505

DIGITAL FILTERS

Analysis of partial discharge pulse distribution along transformer windings using digital filtering techniques. Q. Su and R.E. James **C** p402
Design of a high-performance IIR digital filter chip. R.F. Woods and J.V. McCanny **E** p195
Design of efficient digital filters satisfying arbitrary loss and delay specifications. S.S. Lawson and A. Wicks **G** p611
Design of zero-phase spherically symmetric N-dimensional IIR digital filters. C. Charalambous and M.M. Saleh **G** p419
Flexible systolic architecture for VLSI FIR filters. R. Wyrzykowski and S. Ovramenko **E** p170
On evaluation of the product $H(z_1, z_2)H(z_1^{-1}, z_2^{-1})$. K. Benmahammed **G** p413
Recursive Hartley filter — a new efficient digital-prefilter structure. J.-C. Liu and T.-P. Lin **G** p438
Simple methods for the design of 2D recursive digital filters with noncircular cutoff boundary. M. Ahmadi, A. Mazinani, M. Shridhar and V. Ramachandran **G** p427

DIGITAL-ANALOGUE CONVERSION

Sigma-delta modulators with multibit quantising elements and single-bit feedback. T.C. Leslie and B. Singh **G** p356

DIODES

High-power monolithic phase-locked arrays of antiguided semicondcutor diode lasers. D. Botez **J** p14
Interest in AlGaInAs on InP for optoelectronic applications. M. Allovon and M. Quillec **J** p148
Optically driven photoconductive devices for power switching application. Part I: Theory and experimental results. H. Shakouri and J.J. Liou **G** p343
Optically driven photoconductive devices for power switching application. Part II: Thermal modelling including heat sink. J.J. Liou and J.S. Yuan **G** p350
Passive input current waveshaping method for three-phase diode rectifiers. A.R. Prasad, P.D. Ziogas and S. Manias **B** p512

EDDY CURRENTS

Analytical computation of AC resistance of round and rectangular litz wire windings. J.A. Ferreira **B** p21
Application of a modified $H-\psi$ method in three-dimensional eddy-current problems. Huang Jian, Jiang Zejia, Yu Jihui and Tau Bangding **A** p107
Impact and transient excitation of magnetic plate including hysteresis and eddy-current action. D. O'Kelly **A** p99

EDUCATION AND TRAINING

Educational tool for design of parallel processing systems. H.B. Diab and H.S. Tabbara **A** p1
Implementation of an IC design teaching course. P.R. Shepherd and J.D. Martin **G** p161
Neural network processor: A vehicle for teaching system design. P.Y.K. Cheung, A. Ferrari, P. de Wilde and G. Benyon-Tinker **G** p244
Students' experiences of a first year engineering course. R.G. Kelly **A** p65
VLSI design and CAE at Exeter University. R. Cobley **G** p183
VLSI design training and education in the University of Cantabria within EUROCHIP. S. Bracho, E. Villar, M. Martínez, P. Sánchez and M.A. Allende **G** p234
VLSI design: developments in teaching and research at the University of Essex. R.E. Massara, J. Standeven, M.J. Colley, A.D.P. Green, R.J. Mack, S. Monaghan, P.D. Noakes, G.J. Ritchie and V.K. Sagar **G** p171
VLSI project management in an undergraduate course. C.G.M. Harrison, P.L. Jones and D. King **G** p167

EDUCATIONAL PROJECTS

Behavioural synthesis support system for undergraduate teaching. J. Ainscough, D.M. Southall, S. Oakey and A. Goodwin **G** p149

ELECTRICAL MACHINES

'TORUS': A slotless, toroidal-stator, permanent-magnet generator. E. Spooner and B.J. Chalmers **B** p497
Angular dependencies in Fe-based commercial soft magnetic materials. M. Soinski **A** p273
Application of EKF to parameter and state estimation of pmsm drive. L. Salvatore and S. Stasi **B** p155
Double-output induction generator operating at subsynchronous and supersynchronous speeds: steady-state performance optimisation and wind-energy recovery. I. Çadirci and M. Ermiş **B** p429

ELECTROMAGNETIC COMPATIBILITY

Leakage from coaxial cables. F.A. Benson, P.A. Cudd and J.M. Tealby **A** p285

ELECTROMAGNETIC THEORY

Analysis of biconical microstrip antennas. Y. Lin and L. Shafai **H** p483
Application of a modified $H-\psi$ method in three-dimensional eddy-current problems. Huang Jian, Jiang Zejia, Yu Jihui and Tau Bangding **A** p107
Characteristic modes of a slot in a conducting cylinder and their use for penetration and scattering: TM case. K.Y. Kabalan, A. El-Hajj and R.F. Harrington **H** p287
Complementary formulations in steady-state eddy-current theory. A. Bossavit **A** p265
Electromagnetic activity and absorption in microwave chiral composites. R. Ro, V.V. Varadan and V.K. Varadan **H** p441
Electromagnetic energy and power in terms of charges and potentials instead of fields. M. Uehara and J.E. Allen **A** p42
Electromagnetic field energy containment. V.G. Endean **A** p137
Electromagnetic scattering by a uniaxially anisotropic sphere. K.-L. Wong and H.-T. Chen **H** p314
Electromagnetic theory without electric flux. C.J. Carpenter **A** p189
Graphical depiction of the electromagnetic fields of Hermite–Gaussian modes. R.K. Arora and Z. Lu **H** p369
Modified indirect boundary element technique and its application to electromagnetic potential problems. B. Song and J. Fu **H** p292
Open resonators: improvement of confidence in measurement of loss. A.C. Lynch and R.N. Clarke **A** p221
Scattering by an electrically small bianisotropic sphere in a gyroelectromagnetic uniaxial medium. A. Lakhtakia and W.S. Weiglhofer **H** p217

Slotted parallel-plate waveguide coupled to a conducting cylinder. P.D. Mannikko, C.C. Courtney and C.M. Butler **H** p193
TE scattering from a perfectly conducting wedge loaded by a slot. J.W. Silvestro and C.M. Butler **H** p105

ELECTRON DEVICES

Influence of space charge on field emission of electrons from sharp edges. C.B. Wheeler **A** p169

ENERGY CONVERSION AND STORAGE

Autonomous wind energy conversion system with a simple controller for maximum-power transfer. M. Ermiş, H.B. Ertan, E. Akpınar and F. Ülgüt **B** p421
Design model for electrical distribution systems considering renewable, conventional and energy storage units. A.G. Ter-Gazarian and N. Kagan **C** p499
Double-output induction generator operating at subsynchronous and supersynchronous speeds: steady-state performance optimisation and wind-energy recovery. I. Çadirci and M. Ermiş **B** p429
Incorporation of wind energy conversion systems in conventional generating capacity adequacy assessment. R. Billinton and A.A. Chowdhury **C** p47

ENGINEERING ADMINISTRATION AND MANAGEMENT

Students' experiences of a first year engineering course. R.G. Kelly **A** p65

ERRORS AND ERROR ANALYSIS

Concurrent error detection in array dividers by alternating input data. C.-L. Wey **E** p123
Evaluation of a class of error control line codes: an error performance perspective. A. Kokkos, J.J. O'Reilly, A. Popplewell and S. Williams **I** p128
New bad-data detection and identification technique based on rotation of measurement order for sequential state estimation. K.L. Lo, P.L. Zeng, E. Marchand and A. Pinkerton **C** p387
Specification of error amplifiers for use in feedforward transmitters. R.J. Wilkinson and P.B. Kenington **G** p477
Throughput efficiency and queueing analysis of generalised stop-and-wait ARQ protocols. R. Fantacci **I** p251

FAULT DETECTION

Architecture for integrated process supervision. R. Leitch and C. Quek **D** p317
Calculation and measurement of rail impedances applicable to remote short circuit fault currents. J.C. Brown, J. Allan and B. Mellitt **B** p295
Calculation of remote short circuit fault currents for DC railways. J.C. Brown, J. Allan and B. Mellitt **B** p289
Contribution of single-phase motors to system fault level. C.B. Cooper, Z.A. Jweiles and G.A. Khan **C** p359
Fault detection in large-scale stochastic dynamic systems. M.F. Hassan, M.A. Sultan and M.S. Attia **D** p119
Fault diagnosis in large analogue circuits based on hybrid decomposition. A.A. Hatzopoulos and J.M. Kontoleon **G** p311
Switch-level fault detection and diagnosis environment for MOS digital circuits using spectral techniques. G. Ruiz, J. Michell and A. Burón **E** p293

FAULT LOCATION

Effects of frequency dependence and line parameters on single ended travelling wave based fault location schemes. G.B. Ancell and N.C. Pahalawaththa **C** p332
Fault diagnosis in large analogue circuits based on hybrid decomposition. A.A. Hatzopoulos and J.M. Kontoleon **G** p311
Real-time expert system for fault location on high voltage underground distribution cables. K.K. Kuan and K. Warwick **C** p235

FEEDBACK

Exact noise figure of a noisy two-port with feedback. V.M.T. Lam, C.R. Poole and P.C.L. Yip **G** p473
Maximum *a posteriori* decision feedback detection. G.W. Pulford and R.A. Kennedy **I** p546
On the pole assignment of generalised state space systems via state feedback. F.N. Koumboulis and P.N. Paraskevopoulos **D** p106
Sigma-delta modulators with multibit quantising elements and single-bit feedback. T.C. Leslie and B. Singh **G** p356
Single iterative algorithm with global feedback for integrated system optimisation and parameter estimation of large scale industrial processes: optimality, convergence and simulation. Z. Amini, J. Lin and P.D. Roberts **D** p447
Use of bicausal weighting sequences in least squares identification of open-loop unstable dynamic systems. B. Kouvaritakis and J.A. Rossiter **D** p328

FERRITES AND FERROMAGNETICS

Angular dependencies in Fe-based commercial soft magnetic materials. M. Soinski **A** p273
Impact and transient excitation of magnetic plate including hysteresis and eddy-current action. D. O'Kelly **A** p99
Nonreciprocal devices using ferrite ring resonators. V.A. Dmitriyev and L.E. Davis **H** p257
Tensor-based characteristic impedance calculations of microstrips on ferrite-dielectric substrates for integrated phase shifter applications. Z. Cai, S. Xiao, J. Bornemann and R. Vahldieck **H** p125

FIELD-EFFECT TRANSISTORS

GaAlAs/GaAs planar photoconductors and MSM photodetectors monolithically integrated with HIGFETs: application for optical clock distribution. A. Aboudou, J.P. Vilcot, F. Danneville, D. Decoster, E. Delhaye, P. Boissenot, C. Varin, F. Deschamps and I. Lecuru **J** p83

FILTERS AND FILTERING

Adaptive LMS transversal filters with controlled length. K. Wesołowski, C.M. Zhao and W. Rupprecht **F** p233
Alternative signal processor arithmetic for modified implementation of a normalised adaptive channel equaliser. H. Hahn, B.J. Hosticka and D. Timmermann **F** p36
Analysis of rib waveguide coupler filters. S.V. Burke, P.C. Kendall, S. Ritchie, M.J. Robertson and P.N. Robson **J** p59
Application of frequency dependent Lyapunov equation to 2-dimensional problems. S. Tzafestas, A. Kanellakis and N. Theodorou **D** p197
Automated synthesis of switched-capacitor ladder filters within an analogue silicon compilation environment. A.T. Younis and R.E. Massara **G** p249
Bit-sliced median filter design based on majority gate. C.L. Lee and C.-W. Jen **G** p63
Co-ordinated three-phase hysteretic-control scheme for active power filtering. P. Doulai and G. Ledwich **B** p457
Computer-aided interactive filter design using templates. M.R. Frater and D.B. Pike **G** p277
Design of a three-dimensional gap-coupled suspended substrate stripline bandpass filter. Y.-C. Chiang, C.-K.C. Tzuang and S. Su **H** p376
Design of switched-capacitor FIR filters with application to a low-power MFSK receiver. A. Dąbrowski, U. Menzi and G.S. Moschytz **G** p450
Design of zero-phase spherically symmetric *N*-dimensional IIR digital filters. C. Charalambous and M.M. Saleh **G** p419
Designing filters for polyphase filter banks. J.-H. Lee and W.-J. Kang **G** p363
Filtering effects on permittivity profiles reconstructed by a spectral inverse scattering technique. J.M. Lee, S.Y. Kim and J.W. Ra **H** p507
Flexible systolic architecture for VLSI FIR filters. R. Wyrzykowski and S. Ovramenko **E** p170
IIR filter design via optimal Hankel–norm approximation. B.-S. Chen, S.-C. Peng and B.-W. Chiou **G** p586
Mean regulators for discrete systems. G.P. Liu **D** p67
Modelling and settling times of amplifiers in SC circuits. A. Robertini and W. Guggenbühl **G** p131
New synthesis techniques for high order all-pole filters. M. Sandler **G** p9
Performance of CPFSK systems with tight IF filtering and optimised delay time. G. Jacobsen and K. Emura **J** p158
Reed–Solomon coded homodyne digital pulse position modulation. R.A. Cryan and R.T. Unwin **I** p140
Resonator based logarithmic filter banks. G. Zhang and W.F. McGee **I** p36
Selection of orthonormal transforms for improving the performance of the transform domain normalised LMS algorithm. B. Farhang-Boroujeny and S. Gazor **F** p327
Synchronised linear almost periodically time-varying adaptive filter. H. Ding and M.M. Fahmy **I** p429
Systolic array architecture implementation of parasitic-insensitive switched-capacitor filters. R. Raut, B.B. Bhattacharyya and S.M. Faruque **G** p384
Theory and design of LDI lattice digital and switched-capacitor filters. B. Nowrouzian **G** p517

FINANCIAL MANAGEMENT

Consumer rationality assumptions in the real-time pricing of electricity. A.K. David and Y.Z. Li **C** p315
On the reduction of the programming cost of soft switches for reconfigurable two-dimensional arrays. T. Liu and F. Lombardi **E** p262

GENERATORS

'TORUS': A slotless, toroidal-stator, permanent-magnet generator. E. Spooner and B.J. Chalmers **B** p497
Analysis of magnetic fields in the slotted structure of a superconducting AC generator. S.K. Safi and J.R. Bumby **C** p411
Autonomous wind energy conversion system with a simple controller for maximum-power transfer. M. Ermiş, H.B. Ertan, E. Akpınar and F. Ülgüt **B** p421
Characteristics of unit-connected HVDC generator–convertors operating at variable speeds. J. Arrillaga, S. Sankar, C.P. Arnold and N.R. Watson **C** p295
Errata. A.I. Alolah **C** p80
Feasibility of Lyapunov functions for power system transient stability analysis by the controlling UEP method. A.M. Eskicioğlu and O. Sevaioğlu **C** p152
Graph-theoretic decoupling technique for the design of synchronous generator controllers. L. Carnimeo, M.P. Fanti, M. Trovato and B. Turchiano **D** p337
Identification of synchronous machine parameters from standstill tests using recursive estimation with the bilinear operator. R.W. Merchant and M.J. Gibbard **C** p157
Production costing using mixed-radix and Winograd Fourier transforms. S.R. Lakshmi, S.C. Tripathy, K.S.P. Rao and R. Balasubramanian **C** p536
Steady-state operating limits of three phase self-excited reluctance generator. A.I. Alolah **C** p261

GRAPH THEORY AND TOPOLOGY

Embedding graphs in books: a survey. T. Bilski **E** p134

HAZARDS

Microwave breakdown in a point-to-plane electrode gap. P.S. Excell **A** p89

HYSTERESIS

Co-ordinated three-phase hysteretic-control scheme for active power filtering. P. Doulai and G. Ledwich **B** p457
Impact and transient excitation of magnetic plate including hysteresis and eddy-current action. D. O'Kelly **A** p99

IMAGE PROCESSING

A new motion-compensated image sequence coding scheme at 64 kbit/s. Q. Wang and R.J. Clarke **I** p219
Accurate filter for removing impulse noise from one- or two-dimensional signals. E.R. Davies **E** p111
Application of image contours to three aspects of image processing: compression, shape recognition and stereopsis. S. Marshall **I** p1
Automatic location of visual features by a system of multilayered perceptrons. J.M. Vincent, J.B. Waite and D.J. Myers **F** p405
Border following: new definition gives improved borders. T.D. Haig, Y. Attikiouzel and M.D. Alder **I** p206
Coding efficiency of multiring differential chain coding. A.B. Johannessen, R. Prasad, N.B.J. Weyland and J.H. Bons **I** p224
Design of sensor electronics for electrical capacitance tomography. S.M. Huang, C.G. Xie, R. Thorn, D. Snowden and M.S. Beck **G** p83
Design of zero-phase spherically symmetric *N*-dimensional IIR digital filters. C. Charalambous and M.M. Saleh **G** p419

Detection of the extreme points of closed contours. X. Li, M.A. Ireton and C.S. Xydeas I p198
Distance measure for attributed fuzzy tournaments. A. Shaout and M. Suk E p373
Electrical capacitance tomography for flow imaging: system model for development of image reconstruction algorithms and design of primary sensors. C.G. Xie, S.M. Huang, B.S. Hoyle, R. Thorn, C. Lenn, D. Snowden and M.S. Beck G p89
Electromagnetic geophysical tomography. E.P. Lopes and E.P. Lopes F p27
Electrostatic image theory for layered dielectric sphere. I.V. Lindell, M.E. Ermutlu and A.H. Sihvola H p186
Image sequence coding using adaptive tree-structured vector quantisation with multipath searching. R.F. Chang, W.T. Chen and J.S. Wang I p9
Image-processing technique for investigating dielectric breakdown trees. D.B. Watson and M.I. Barber A p79
Low bit-rate image sequence coding using spatial decomposition. P.J. Cordell and R.J. Clarke I p575
Modelling peak shapes obtained by Hough transform. E.R. Davies E p9
Neural network approach to DPCM system design for image coding. C.N. Manikopoulos I p501
Novel type of scattering centre in horizontally polarised bistatic edge scattering. W.F. Herdeg, H. Wendel and B. Röde H p113
On transform coding of motion-compensated difference images. R.J. Clarke I p372
Progressive image transmission by content driven Laplacian pyramid encoding. G. Mongatti, L. Alparone, G. Benelli, S. Baronti, F. Lotti and A. Casini I p495
Pyramid transform coding. L. Wang and M. Goldberg I p364
Segmented coding of digital image sequences. M. Soryani and R.J. Clarke I p212
Time-to-go estimation from infrared images. K.C. Markham I p356
Tomographic imaging of industrial process equipment: techniques and applications. F.J. Dickin, B.S. Hoyle, A Hunt, S.M. Huang, O. Ilyas, C. Lenn, R.C. Waterfall, R.A. Williams, C.G. Xie and M.S. Beck G p72

INDUCTION MOTORS

Contribution of single-phase motors to system fault level. C.B. Cooper, Z.A. Jweiles and G.A. Khan C p359
Control loop study of a load commutated CSI-fed induction motor. J.-H. Song, T.-W. Yoon, K.-H. Kim, K.-B. Kim and M.-J. Youn B p183
High-performance speed controller for voltage-source inverter-fed induction motor drives. C.M. Liaw and C.W. Tseng B p220
Induction motor parameter estimation algorithm using spectral analysis. H. Chai and P.P. Acarnley B p165
Modelling and dynamic performance of variable-frequency-fed induction motors. M.H. Salama and P.G. Holmes B p191
New approach for the analysis of a three-phase induction motor of different ratings connected to a single-phase supply. M.H. El-Maghraby, R.H. Thejel and M.M. Ibrahim B p145
New model for single-unit representation of induction motor loads, including skin effect, for power system transient stability studies. M. Akbaba and S.Q. Fakhro B p521
Observers for field-oriented control of induction motor drives. D.S. Wijesundera and R.D. Jackson B p381
Operating restrictions for third harmonic control of flux in induction machines. G.A. Covic and J.T. Boys B p485
Practical considerations in the optimisation of induction motor design. C. Singh and D. Sarkar B p365
Practical real-time PWM modulators: an assessment. P.G. Handley and J.T. Boys B p96
Rotor flux observation and control in squirrel-cage induction motor: reliability with respect to parameters variations. X. Roboam, C. Andrieux, B. De Fornel and J.C. Hapiot D p363
Steady-state operating limits of three phase self-excited reluctance generator. A.I. Alolah C p261

INFORMATION AND COMMUNICATION THEORY

Capacity and coding for memories with real-time noisy defect information at encoder and decoder. M. Salehi I p113
On the achievable information rates of DPSK. G. Kaplan and S. Shamai I p311
Static performance of a divide-and-conquer information-distribution protocol supporting a load-balancing scheme. J.G. Vaughan E p430
Structured knowledge manipulation system for real-time engineering applications. S. Hudson and J.M. Hannah E p59

INSTRUMENTATION AND MEASURING SCIENCE

Calibration techniques for free space reflection coefficient measurements. F.C. Smith, B. Chambers and J.C. Bennett A p247
Criterion for the performance analysis of synchronous and asynchronous sampling instruments based on nonlinear processing. M.A. Catelani, G. Iuculano, D. Mirri, F. Filicori and A. Menchetti A p141
Current shunts and resistors in use in NAMAS accredited laboratories. L.B. Cronin and C.J. Kemp A p179
Eight-digit voltage measurements: how meaningful are they?. P.J. Spreadbury A p243
Electro-optical measurement of an induced toroidal electric field in water. T. Fujiwara, H. Yamada and H. Oka A p84
Electromagnetic geophysical tomography. E.P. Lopes and E.P. Lopes F p27
Fast measurement of real and reactive power in three-phase circuits. W.J. Bonwick and P.J. Hession A p51
Inversion of continued-fraction expansion of multidimensional transfer functions using derivatives and graphs. C.S. Gargour, V. Ramachandran and M. Ahmadi G p395
Microwave probe for circuit/device testing. J. Rodriguez-Tellez G p333
New bad-data detection and identification technique based on rotation of measurement order for sequential state estimation. K.L. Lo, P.L. Zeng, E. Marchand and A. Pinkerton C p387
Photoacoustic and photothermal deflection spectroscopy of semiconductors. G. Amato, G. Benedetto, L. Boarino, M. Maringelli and R. Spagnolo A p161
Potential gradient measuring device based on a partial method. F. Žlahtič A p174
Resonant open ended coaxial line sensor for measuring complex permittivity. R.H. Johnson, J.L. Green, M.P. Robinson, A.W. Preece and R.N. Clarke A p261
Three-dimensional displacement and force transducer. M.J. Warren-Forward, R.M. Goodall and D.J. Pratt A p21
UK electrical standards: an overview. O.C. Jones A p214
Ultrawideband measurement of multiple-port MMICs using nonideal test fixtures and a 2-port ANA. S. Lucyszyn, V. Magnier, H.C. Reader and I.D. Robertson A p235

INSULATORS AND INSULATION

Effect of barriers on the growth of trees in solid insulation. D.W. Auckland, S.M.F. Kabir and B.R. Varlow A p14
Factors affecting electrical tree testing. D.W. Auckland, J.M. Cooper and B.R. Varlow A p9
Variable-voltage diode convertor rolling-stock transformers to control DC traction motors. D.J. Marsden B p197

INTEGRATED CIRCUITS

Cellular automata based pattern generator for testing RAM. D. Roy Chowdhury, I. Sen Gupta and P. Pal Chaudhuri E p469
Design of basic CMOS cell library. J.W.W. Chong and R.G. Forbes G p256
Development of generic testing strategies for mixed-signal integrated circuits. T.I. Pritchard, P.S.A. Evans and D. Taylor G p231
GaAlAs/GaAs planar photoconductors and MSM photodetectors monolithically integrated with HIGFETs: application for optical clock distribution. A. Aboudou, J.P. Vilcot, F. Danneville, D. Decoster, E. Delhaye, P. Boissenot, C. Varin, F. Deschamps and I. Lecuru J p83
Generalised approach to automatic custom layout of analogue ICs. D.J. Chen and B.J. Sheu G p481
High speed primitives of hardware accelerators for DSP in GaAs technology. R. Sarmiento, P.P. Carballo and A. Núñez G p205
Implementation of an IC design teaching course. P.R. Shepherd and J.D. Martin G p161
Silicon monolithic millimetre-wave integrated circuits. J.-F. Luy, K.M. Strohm, J. Buechler and P. Russer H p209
Simulation of a class of integrated circuits using spreadsheets. A. El-Hajj, K.Y. Kabalan and M. Yehia G p607
Teaching full-custom design skills using ChipWise. L.T. Walczowski, W.A.J. Waller and E. Wells G p154

LASERS

Analytic description of the standing wave effect in DFB lasers. X. Pan, H. Olesen, B. Tromborg and H.E. Lassen J p189
Comparative study of some travelling-wave semiconductor laser amplifier models. L. Gillner J p339
Comparison between two recent large-signal dynamic DFB laser models. A.J. Lowery J p402
Computer model for semiconductor laser amplifiers with RF intensity-modulated inputs. C.D. Zaglanikis and A.J. Seeds J p254
Correction algorithms in a laser scanning dimension measurement system. K.-S. Chang, S.-T. Lu, Y.-P. Wu and C. Chou A p57
Effect of surface recombination on microwave performance of laser-induced DBR gratings in silicon coplanar waveguides. W. Platte J p399
Fundamental characteristics of InGaAs/InGaAsP-MQW-SCH-lasers emitting in 1.3 μm wavelength range. M. Möhrle, M. Rozenweig, H. Düser and D. Grützmacher J p29
Gain measurements in InGaAs/InGaAsP multiquantum-well broad-area lasers. R.O. Miles, M.A. Dupertuis, F.K. Reinhart and P.M. Brosson J p33
Lateral mode discrimination in AlGaInP selectively buried ridge waveguide lasers. D.P. Bour and G.A. Evans J p71
Modulation properties of a near travelling-wave semiconductor laser amplifier. L. Gillner J p331
Semiconductor Raman laser pumped with a fundamental mode. K. Suto, T. Kimura and J. Nishizawa J p407
Transmission-line laser modelling of semiconductor laser amplified optical communications systems. A.J. Lowery J p180
Wavelength tuning characteristics of DFB lasers having twin-guide structures modulated by injection current or electric field. E. Yamamoto, M. Hamada, K. Suda, S. Nogiwa and T. Oki J p24

LIGHTNING AND LIGHTNING PROTECTION

Calculation of the induced effects due to a lightning stroke. S. Cristina and A. Orlandi B p374
Electromagnetic field energy containment. V.G. Endean A p137

LINEAR MOTORS

Force-displacement characteristics of linear stepping motors. T. Yokozuka and E. Baba B p37

LOAD AND VOLTAGE REGULATION

Algorithm for load-shedding operations in reduced generation periods. K.P. Wong and B.S. Lau C p478
Application of a power system stabiliser and a static VAR controller to a multimachine power system. O.P. Malik C p300
Fast super decoupled loadflow. S.B. Patel C p13
Load flow analysis by G–S reduction and restoration method. A.S. Hasan, T. Krishnaparandhama and A.M. Howaidi C p383
New model for peak demand forecasting applied to highly complex load characteristics of a fast developing area. E.H. Barakat, J.M. Al-Qassim and S.A. Al Rashed C p136
Pattern recognition applied to transient stability analysis of power systems with modelling including voltage and speed regulation. G. Garcia, J. Bernussou and M. Berbiche B p321
Pulse multiplication in parallel convertors by multitap control of interphase reactor. M.E. Villablanca and J. Arrillaga B p13
Rapid determination of long generation lifetime. X. Zhang G p1
Reactive power dispatch incorporating voltage stability. A.M. Chebbo, M.R. Irving and M.J.H. Sterling C p253
Voltage collapse proximity indicator: behaviour and implications. A.M. Chebbo, M.R. Irving and M.J.H. Sterling C p241

LOGIC

Alternative approach to ASIC design methodology based on reconfigurable logic devices. J. Dunlop, D. Girma and P. Lysaght G p217
Architectures for fast encoding and error detection of cyclic codes. A. Popplewell, J.J. O'Reilly and S. Williams I p340
Automated synthesis of digital multiplexer networks. A.E.A. Almaini, J.F. Miller and L. Xu E p329

Binary decision based representation implementation of sequential systems. S. Aborhey **E** p450
Bit-sliced median filter design based on majority gate. C.L. Lee and C.-W. Jen **G** p63
Clockless synchronisation of distributed concurrent processes. D.M. Taub **E** p88
Corrected settling time of the distributed parallel arbiter. D.M. Taub **E** p348
Efficient state reduction methods for PLA-based sequential circuits. M.J. Avedillo, J.M. Quintana and J.L. Huertas **E** p491
Low-complexity synthesis of incompletely specified multiple-output mod-2 sums. M.W. Riege and Ph.W. Besslich **E** p355
Modelling of optical logic gates for computer simulation. J.J. Morikuni, D.S. Gao and S.M. Kang **J** p105
Multiple valued input generalised Reed–Muller forms. I. Schäfer and M.A. Perkowski **E** p519
New fast fixed-delay sizing algorithm for high-performance CMOS combinational logic circuits and its applications. Jen-Sheng Hwang and Chung-Yu Wu **E** p379
Self-organising fuzzy logic controller. B.S. Zhang and J.M. Edmunds **D** p460
Simplification of switching functions expressed in Reed–Muller algebraic form. D.H. Green and G.A. Khuwaja **E** p511
Simulation of a class of integrated circuits using spreadsheets. A. El-Hajj, K.Y. Kabalan and M. Yehia **G** p607

MAGNETIC DEVICES AND PROPERTIES

Analytical computation of AC resistance of round and rectangular litz wire windings. J.A. Ferreira **B** p21
Simulation of multilimb power transformers in the harmonic domain. A. Medina and J. Arrillaga **C** p269
Study and characterisation of MOSFET integrated magnetodetector based on hot carrier detection. A. El-Hennawy and F. Al-Ghamdi **G** p119
Tokamak poloidal field power supplies. J.B. Hicks and M.A. Laughton **C** p166

MAGNETIC FIELDS

Characteristic modes of a slot in a conducting cylinder and their use for penetration and scattering: TM case. K.Y. Kabalan, A. El-Hajj and R.F. Harrington **H** p287
Electromagnetic energy and power in terms of charges and potentials instead of fields. M. Uehara and J.E. Allen **A** p42
Electromagnetic field computations in a three-dimensional cavity with a waveguide junction of a frequency standard. L. Pichon and A. Razek **H** p343
Gyromagnetic interpretation of the magnetisation characteristics of fast-pulsed amorphous tapes. J.E. Dolan and H.R. Bolton **A** p129

MANUFACTURING

Statistical process control in PCB manufacture: what are the lessons?. B.G. Dale and P. Shaw **A** p182

MATHEMATICAL TECHNIQUES

100 Mbit/s adaptive data compressor design using selectively shiftable content-addressable memory. S. Jones **G** p498
A cumulant based TK method for the harmonic retrieval problem. Z. Shi and F. Fairman **F** p221
Adaptive learning circuit based on the Walsh transform. V.G. Endean **G** p23
Adaptive linear phase complex–real steered algorithms. X. Chen and E.L. Dagless **F** p283
Algorithm for load-shedding operations in reduced generation periods. K.P. Wong and B.S. Lau **C** p478
Algorithmic engineering in adaptive signal processing. J.G. McWhirter **F** p226
Alternative signal processor arithmetic for modified implementation of a normalised adaptive channel equaliser. H. Hahn, B.J. Hosticka and D. Timmermann **F** p36
An improved Hessian matrix for recursive maximum likelihood ARMA estimation. G. Liang and D.M. Wilkes **F** p212
Analysis of *H*-plane waveguide discontinuities with an improved finite-difference time domain algorithm. E.A. Navarro, V. Such, B. Gimeno and J.L. Cruz **H** p183
Array shape self-calibration technique for direction finding problems. B.P. Ng **H** p521
Bi-way sorter: a two-dimensional systolic array. G.A. Orton, L.E. Peppard and S.G. Akl **E** p147
Border following: new definition gives improved borders. T.D. Haig, Y. Attikiouzel and M.D. Alder **I** p206
Challenging algorithm for optimal reactive power dispatch through classical co-ordination equations. J. Nanda, L. Hari and M.L. Kothari **C** p93
Co-ordinated static and dynamic monitoring and optimisation of power systems using a parallel architecture and pattern recognition techniques. C.S. Chang **C** p197
Comparison of adaptive target-tracking algorithms for phased-array radar. M. Munu, I. Harrison, D. Wilkin and M.S. Woolfson **F** p336
Conjugate gradient algorithm for efficient training of artificial neural networks. C. Charalambous **G** p301
Correction algorithms in a laser scanning dimension measurement system. K.-S. Chang, S.-T. Lu, Y.-P. Wu and C. Chou **A** p57
Criterion for the performance analysis of synchronous and asynchronous sampling instruments based on nonlinear processing. M.A. Catelani, G. Iuculano, D. Mirri, F. Filicori and A. Menchetti **A** p141
Design of algorithms for spatial-time reduction complexity of dynamic programming. L. Moreno, L. Acosta and J.L. Sánchez **D** p172
Design of restricted complexity digital regulators using explicit criterion minimisation. O.A. Sebakhy and H.A. Murad **D** p251
Discrete transform technique for solving nonlinear circuits and equations. S.Y.R. Hui and C. Christopoulos **A** p321
Division and bit-serial multiplication over $GF(q^m)$. M.A. Hasan and V.K. Bhargava **E** p230
Efficient analysis of finline structures by the boundary-element method. B. Song and J. Fu **H** p116
Efficient computation of the split-radix FFT. A.N. Skodras and A.G. Constantinides **F** p56
Efficient state reduction methods for PLA-based sequential circuits. M.J. Avedillo, J.M. Quintana and J.L. Huertas **E** p491
Electrical capacitance tomography for flow imaging: system model for development of image reconstruction algorithms and design of primary sensors. C.G. Xie, S.M. Huang, B.S. Hoyle, R. Thorn, C. Lenn, D. Snowden and M.S. Beck **G** p89
Electromagnetic energy and power in terms of charges and potentials instead of fields. M. Uehara and J.E. Allen **A** p42
Extremely fast economic load dispatch algorithm through modified co-ordination equations. J. Nanda, L. Hari, M.L. Kothari and J. Henry **C** p39
Far-field computation from amplitude near-field data on two surfaces: cylindrical case. O.M. Bucci, G. D'Elia, G. Leone and R. Pierri **H** p143
Fast and accurate technique for power system state estimation. Adel Ali Abou El-Ela **C** p7
Fast implementation of root-form eigen-based methods for detecting closely spaced sources. T.-S. Lee **F** p288
Fast learning-algorithms for a self-optimising neural network with an application to isolated word recognition. T. Gramss **F** p391
Fast linear congruential pseudorandom number generators using the Messerschmitt pipelining transformation. N. Burgess and K.V. Lever **E** p131
Fast super decoupled loadflow. S.B. Patel **C** p13
Feasibility of Lyapunov functions for power system transient stability analysis by the controlling UEP method. A.M. Eskicioğlu and O. Sevaioğlu **C** p152
Fictitious absorber for truncating finite element meshes in scattering. J.-M. Jin, J.L. Volakis and V.V. Liepa **H** p472
Heuristic algorithms for register allocation. E. Luque, A. Ripoll and T. Diez **E** p73
IIR filter design via optimal Hankel–norm approximation. B.-S. Chen, S.-C. Peng and B.-W. Chiou **G** p586
Identification of operational subcubes in unreliable hypercubes. S. Latifi **E** p117
Image sequence coding using adaptive tree-structured vector quantisation with multipath searching. R.F. Chang, W.T. Chen and J.S. Wang **I** p9
Improved TLM method for the solution of coupled circuit equations. J.E. Dolan **A** p315
Improved Wolovich algorithm for determining state-space representations of linear multivariable polynomial systems. D. Westreich **D** p267
Improved algorithm for the deinterleaving of radar pulses. D.J. Milojević and B.M. Popović **F** p98
Induction motor parameter estimation algorithm using spectral analysis. H. Chai and P.P. Acarnley **B** p165
Inversion of integer matrices in residue number system. D. Gamberger **E** p465
Low-complexity synthesis of incompletely specified multiple-output mod-2 sums. M.W. Riege and Ph.W. Besslich **E** p355
Maximum *a posteriori* decision feedback detection. G.W. Pulford and R.A. Kennedy **I** p546
Maximum-likelihood CFAR for Weibull background. R. Ravid and N. Levanon **F** p256
Maximum-likelihood synchronisation algorithms for Q^2PSK. V. Acha and R.A. Carrasco **I** p597
Message-efficient distributed mutual exclusion incorporating the 'least recently used' fairness criterion. R. Satyanarayanan and C.R. Muthukrishnan **E** p501
Methods for detection of some properties of multiple-valued functions. R.S. Stanković and C. Moraga **E** p421
Modelling and algorithms for spare allocation in reconfigurable VLSI. S.-Y. Kuo and W.K. Fuchs **E** p323
Multirate adaptive inferential estimation. W. Lu and D.G. Fisher **D** p181
Neural adaptive congestion control for broadband ATM networks. X. Chen and I.M. Leslie **I** p233
Neural network approach to DPCM system design for image coding. C.N. Manikopoulos **I** p501
New fast fixed-delay sizing algorithm for high-performance CMOS combinational logic circuits and its applications. Jen-Sheng Hwang and Chung-Yu Wu **E** p379
New partial scan design based on hard fault distribution analysis. P.-C. Chen, B.-D. Liu, J.-F. Wang and C.-P. Chen **E** p457
Note on single-term Walsh series method for singular systems. K. Balachandran and K. Murugesan **D** p347
Numerical feeding algorithms for asynchronous motors with impressed armature current. C. Attaianese, E. Pagano and M. Scarano **B** p44
On the design of VLSI arrays for discrete Fourier transform. C.-M. Liu and C.-W. Jen **G** p541
On the solution of the continuous-time Lyapunov matrix equation in two canonical forms. C.-S. Xiao, Z.-M. Feng and X.-M. Shan **D** p286
On the stationary points of the output power versus response zero performance surface in power inversion arrays. C.C. Ko, G. Balabhaskar and F. Chin **F** p199
Optimal multilayer filter design using real coded genetic algorithms. E. Michielssen, S. Ranjithan and R. Mittra **J** p413
Optimisation approach to the analysis of piecewise-linear convex circuits. S. Osowski **G** p295
Orthogonal least-squares algorithm for training multioutput radial basis function networks. S. Chen, P.M. Grant and C.F.N. Cowan **F** p378
Parallel adaptive rooting algorithm for general frequency estimation and direction finding. J.-C. Ho, J.-F. Yang and M. Kaveh **F** p43
Parallel architectures for higher-radix division. P. Montuschi **E** p101
Passive input current waveshaping method for three-phase diode rectifiers. A.R. Prasad, P.D. Ziogas and S. Manias **B** p512
Performance evaluation of communicating sequential processes (CSP) using Petri nets. J. Magott **E** p237
Polynomial optimisation of discrete-time multivariable regulators. K.J. Hunt **D** p190
Power combining efficiency and its optimisation. M.S. Gupta **H** p233
Prediction models of standing wave patterns of distribution line carrier channels. S. Celozzi and M. D'Amore **C** p102
Probabilistic approach for hot electron transport. C.F. Fernandes and H.A. Santos **G** p569
Processor arrays for matrix triangularisation with partial pivoting. R. Wyrzykowski **E** p165
Production costing using mixed-radix and Winograd Fourier transforms. S.R. Lakshmi, S.C. Tripathy, K.S.P. Rao and R. Balasubramanian **C** p536
Radiation pattern computation of microstrip antennas on finite size ground planes. S.A. Bokhari, J.R. Mosig and F.E. Gardiol **H** p278
Real-valued error control coding by using DCT. J.-L. Wu and J. Shiu **I** p133
Realisation of pipelined mesh algorithms on hypercubes. K.-J. Lin and C.-W. Wu **E** p189
Recursive state and parameter estimation of SISO singular systems. M. Darouach and M. Boutayeb **D** p204
Reduced-order models of 2-D linear discrete separable-denominator system using bilinear Routh approximations. T.-Y. Guo, C. Hwang, L.-S. Shieh and C.-H. Chen **G** p45
Resolution of coherent sources in power inversion arrays with a fast zero tracking algorithm. C.C. Ko **I** p45
Rigorous analysis of a groove guide. . Inderjit and M. Sachidananda **H** p449

Selection of orthonormal transforms for improving the performance of the transform domain normalised LMS algorithm. B. Farhang-Boroujeny and S. Gazor **F** p327
Sequences and arrays derived from nonprimitive irreducible polynomials. D.H. Green and S.K. Amarasinghe **E** p363
Simplification of switching functions expressed in Reed–Muller algebraic form. D.H. Green and G.A. Khuwaja **E** p511
Single iterative algorithm with global feedback for integrated system optimisation and parameter estimation of large scale industrial processes: optimality, convergence and simulation. Z. Amini, J. Lin and P.D. Roberts **D** p447
Software based linearisation of thermistor type nonlinearity. D. Ghosh and D. Patranabis **G** p339
Statistical analysis of a subspace method for bearing estimation without eigendecomposition. P. Stoica and T. Söderström **F** p301
Systolic arrays: how to choose them. M.O. Esonu, A.J. Al-Khalili, S. Hariri and D. Al-Khalili **E** p179
Time-of-arrival-based retransmission scheduling for unslotted random access channels. D. Raychaudhuri **I** p303
Two-/multi-action discretised learning routine algorithms in interaction with threshold-based flow control for computer networks. A.V. Vasilakos, C.T. Paximadis and C.A. Moschonas **E** p93
Two-level state estimation for large power system. Part 1: Algorithms and Part 2: Computational experience. M.S. Kurzyn **C** p175
Use of subsectional edge expansion functions (SEEFs) to analyse rectangular microstrip antennas with the method of moments. G.A.E. Vandenbosch and A.R. Van de Capelle **H** p159
Word-based dynamic algorithms for data compression. J. Jiang and S. Jones **I** p582

METAL-OXIDE-SEMICONDUCTOR STRUCTURES

Compatibility of switched capacitor filters with VLSI processes. J.C.M. Bermudez, M.C. Schneider and C.G. Montoro **G** p413
Simple analytical model for short-channel MOS devices. H.-C. Chow, W.-S. Feng and J.B. Kuo **G** p405
Very-high-speed VLSI 2s-complement multiplier using signed binary digits. W. Balakrishnan and N. Burgess **E** p29

MICROPROCESSORS

Computation of 2-dimensional fast transforms and image filtering on transputer networks. S. Gudvangen and A.G.J. Holt **E** p249
Performance of a RISC machine with two level caches. L.P. Happel and A.P. Jayasumana **E** p221
SAM-I: a prototype machine for dynamic, array-oriented programming languages. R.F. Hobson, J.D. Hoskin, J.L. Simmons and R.W. Spilsbury **E** p335
iHARP: a multiple instruction issue processor. G.B. Steven, R.G. Adams, P.A. Findlay and S.A. Trainis **E** p439

MICROSTRIP AND STRIPLINE

Analysis of broadside coupled microstrip open-end discontinuities. J. Martel, R.R. Boix and M. Horno **H** p239
Analysis of discontinuities in waveguiding structures by MAB method. J. Macháč **H** p351
Asymmetric microstrip lines on anisotropic substrates with material axes inclined in the transverse plane. T.Q. Ho and B. Beker **H** p421
Distributed microwave filter realisation providing close to optimum performance for multigigabit optical communications. P.M. Lane, L.R. Watkins and J.J. O'Reilly **J** p280
Full wave analysis for the equivalent circuit of an inclined slot on a microstrip ground plane. A.K. Bhattacharyya, Y.M.M. Antar and A. Ittipiboon **H** p245
Spectral domain analysis of aperture-coupled microstrip patch antennas. A.K. Bhattacharyya, Y.M.M. Antar and A. Ittipiboon **H** p459
Tensor-based characteristic impedance calculations of microstrips on ferrite-dielectric substrates for integrated phase shifter applications. Z. Cai, S. Xiao, J. Bornemann and R. Vahldieck **H** p125

MICROWAVE ACTIVE COMPONENTS

Three-pole dielectric resonators microwave bandpass active filter. B. Madrangeas, B. Jarry, P. Guillon, J. Larroque, B. Theron and D. Parise **H** p205

MICROWAVE CIRCUITS AND NETWORKS

Equivalent circuit of a cavity coupled to a feeding line and its dependence on the electric or magnetic nature of output coupling structure. P. Couffignal, J. Obregon and H. Baudrand **H** p221
Exact noise figure of a noisy two-port with feedback. V.M.T. Lam, C.R. Poole and P.C.L. Yip **G** p473
Frequency domain behaviour of coupled-line digital frequency multipliers. I. Sakagami **H** p271
Impedance matching method using passive lossless feedback. P.V. Brennan **H** p397
Nonreciprocal devices using ferrite ring resonators. V.A. Dmitriyev and L.E. Davis **H** p257
Superconducting microwave resonators. M.J. Lancaster, T.S.M. Maclean, Z. Wu, A. Porch, P. Woodall and N.NcN. Alford **H** p149
Theoretical and experimental resonant frequencies of rectangular dielectric resonators. R.K. Mongia **H** p98

MICROWAVE HEATING

Computer modelling of microwave cooking using the transmission-line model. R.A. Desai, A.J. Lowery, C. Christopoulos, P. Naylor, J.M.V. Blanshard and K. Gregson **A** p30

MICROWAVE INTEGRATED CIRCUITS

Ultrawideband measurement of multiple-port MMICs using nonideal test fixtures and a 2-port ANA. S. Lucyszyn, V. Magnier, H.C. Reader and I.D. Robertson **A** p235

MICROWAVE MEASUREMENTS

Compact-scan, plane-polar microwave holographic technique for reflector antenna profile measurement. C.L. Grattan **H** p91
Electromagnetic activity and absorption in microwave chiral composites. R. Ro, V.V. Varadan and V.K. Varadan **H** p441
Phase shifters for dielectric guides. R.J. Collier and M.F. D'Souza **H** p202

MICROWAVE PASSIVE COMPONENTS

Open resonators powered by a rectangular waveguide. O.M. Bucci and G. Di Massa **H** p323

MICROWAVE SYSTEMS

Design considerations for an optically excited semiconductor microstrip gap at microwave frequencies. S.S. Gevorgian **J** p153
Generation and control of microwave signals by optical techniques. L. Goldberg, R.D. Esman and K.J. Williams **J** p288
Improvements in ultra-broadband TEM coupler design. C.M. Potter and G. Hjipieris **H** p171

MICROWAVE TUBES

Improved nonlinear model for multisignal analysis of helix TWTs. V. Srivastava and S.N. Joshi **H** p129
Simplified tape model of arbitrarily-loaded helical slow-wave structures of a travelling-wave tube. A.K. Sinha, R. Verma, R.K. Gupta, L. Kumar, S.N. Joshi, P.K. Jain and B.N. Basu **H** p347

MILLIMETRE WAVE DEVICES AND COMPONENTS

Analysis of discontinuities in waveguiding structures by MAB method. J. Macháč **H** p351
Phase shifters for dielectric guides. R.J. Collier and M.F. D'Souza **H** p202
Silicon monolithic millimetre-wave integrated circuits. J.-F. Luy, K.M. Strohm, J. Buechler and P. Russer **H** p209
Theoretical and experimental resonant frequencies of rectangular dielectric resonators. R.K. Mongia **H** p98

MODULATION

A comparison study of low bit rate DE-QPSK, TCM 8-ary PSK and 16-ary DE-QAM fully digital demodulators operating over a land mobile satellite link. P. Fines and A.H. Aghvami **I** p319
Adaptive quantisation for one-bit sigma-delta modulation. J. Yu, M.B. Sandler and R.E. Hawken **G** p39
Analysis, design and implementation of the space-vector modulator for forced-commutated cycloconvertors. L. Huber, D. Borojević and N. Burány **B** p103
Asymmetric modulation indices in full/partial response multi-H phase-coded modulations with different phase pulse functions. L.-S. Lee, H.-K. Hwang and S.-H. Chen **I** p508
Comparison of coherent and noncoherent modulation in the presence of phase noise. A.G. Burr **I** p147
Computationally simple ADPCM based on exponential power estimator. G. Mathew, S.V. Narasimhan and A.P. Shivaprasad **I** p53
DIRECS: system design of a 100 Mbit/s digital receiver. O. Joeressen, M. Oerder, R. Serra and H. Meyr **G** p222
Decoding metrics for slow frequency-hopped DPSK systems. Yu T. Su **I** p525
Examination of an adaptive DFE and MLSE/near-MLSE for fading multipath radio channels. P.K. Shukla and L.F. Turner **I** p418
Fundamental limitations of switched-capacitor sigma-delta modulators. V.F. Dias, G. Palmisano, P. O'Leary and F. Maloberti **G** p27
Maximum-likelihood synchronisation algorithms for Q^2PSK. V. Acha and R.A. Carrasco **I** p597
Multiple hops/symbol fast frequency-hopping spread spectrum multiple access with coding for indoor radio. M. Moeneclaey and J. Wang **I** p95
Noise in mixed continuous-time switched-capacitor sigma-delta modulators. V.F. Dias, G. Palmisano and F. Maloberti **G** p680
On the achievable information rates of DPSK. G. Kaplan and S. Shamai **I** p311
Optical pulse interval and width modulation for analogue fibre communications. B. Wilson, Z. Ghassemlooy and J.C.S. Cheung **J** p376
PPM versus PCM for optical local-area networks. J.D. Martin and H.H. Hausien **I** p241
Performance evaluation of pragmatic TCM codes through band-limited nonlinear satellite channel: a computer simulation approach. V.K. Dubey, N.K. Lim and E. Gunawan **I** p15
Performance of CPFSK systems with tight IF filtering and optimised delay time. G. Jacobsen and K. Emura **J** p158
Performance of MPSK trellis-coded modulation in Rayleigh fading with an imperfect phase reference. K.Y. Chan and A. Bateman **I** p329
Sigma-delta modulators with multibit quantising elements and single-bit feedback. T.C. Leslie and B. Singh **G** p356
Spectral efficiency of *M*-QAM in frequency reuse radio systems. S.W. Wales **I** p381
Transmission of digitally encoded speech at 1.2 Kbaud for PCN. L. Hanzo, R. Salami, R. Steele and P.M. Fortune **I** p437

MOTORS

'TORUS': A slotless, toroidal-stator, permanent-magnet generator. E. Spooner and B.J. Chalmers **B** p497
Interturn voltages in machine windings evaluated from on-site test results and computer simulation. K.J. Cornick, J.L. Guardado and P. Bekaert **B** p238
New technique for reducing cogging torque in a class of brushless DC motors. B. Ackermann, J.H.H. Janssen, R. Sottek and R.I. van Steen **B** p315
Numerical feeding algorithms for asynchronous motors with impressed armature current. C. Attaianese, E. Pagano and M. Scarano **B** p44
Practical considerations in the optimisation of induction motor design. C. Singh and D. Sarkar **B** p365
Use of canned rotors in high-field permanent magnet machines. K.J. Binns, M.S.N. Al-Din and P.J.G. Lisboa **B** p471

MULTIVARIABLE CONTROL SYSTEMS

Controller design for linear multivariable systems with periodic inputs. C.-A. Lin and S.-J. Ho **D** p1
Expert aided sequential design of multivariable systems. J.-M. Boyle and J.M. Maciejowski **D** p471
Intelligent advisory system for achieving diagonal dominance. J. Huang and N. Munro **D** p41

Multivariable adaptive pole-assignment controller with saturation constraints. A. Arruti and J. Flórez **D** p13
Nearly decoupled robust MIMO control systems design. M.H. Perng and T.S. Lee **D** p53
Polynomial optimisation of discrete-time multivariable regulators. K.J. Hunt **D** p190
Robust identification of systems using block-pulse functions. H. Dai and N.K. Sinha **D** p308
Robust stabilisation of multivariable feedback systems with desired performance requirement. M.-H. Tu and C.-M. Lin **D** p259

NETWORKS

Adaptive analogue network for real-time estimation of basic waveforms of voltages and currents. A. Cichocki and T. Łobos **C** p343
Analogy between VLSI floorplanning problems and realisation of a resistive network. I. Cederbaum **G** p99
Analysis of the sleep EEG using a multilayer network with spatial organisation. S. Roberts and L. Tarassenko **F** p420
Automated synthesis of digital multiplexer networks. A.E.A. Almaini, J.F. Miller and L. Xu **E** p329
Capacity of time-space switched cellular radio link systems for metropolitan area networks. J. Zander and K.-A. Åhl **I** p533
Comparison of connectionist and traditional methods applied to phrase classification and grammaticality determination. P.J. Wyard and N.P. Warren **F** p397
Conjugate gradient algorithm for efficient training of artificial neural networks. C. Charalambous **G** p301
Design of a physical layer security mechanism for CSMA/CD networks. F.S.F. Poon and M.S. Iqbal **I** p103
Diakoptic and large change sensitivity analysis. G.N. Stenbakken and J.A. Starzyk **G** p114
Eigenvalue description of the quarter wave plate. J. Helszajn **H** p110
Fast learning-algorithms for a self-optimising neural network with an application to isolated word recognition. T. Gramss **F** p391
Fixed point model for adaptive token passing bus protocol. P.G. Harrison and F. Naraghi **E** p50
Implementation issues of sigmoid function and its derivative for VLSI digital neural networks. P. Murtagh and A.C. Tsoi **E** p207
Neural adaptive congestion control for broadband ATM networks. X. Chen and I.M. Leslie **I** p233
Neural network for estimation of harmonic components in a power system. S. Osowski **C** p129
Novel analogue VLSI design for multilayer networks. J.N. Tombs, L. Tarassenko and A.F. Murray **F** p426
Optimal virtual circuit routing in computer networks. Y.-J. Chang, J.-L.C. Wu and H.-J. Ho **I** p625
PPM versus PCM for optical local-area networks. J.D. Martin and H.H. Hausien **I** p241
Packet level access control scheme for internetwork security. M.S. Iqbal and F.S.F. Poon **I** p165
Performance analysis of bridged LANs. R. Ahmad and F. Halsall **E** p64
Performance analysis of interconnected CSMA/CD local area networks. E.D. Sykas and G.L. Lyberopoulos **I** p181
Performance analysis of slotted rings with finite buffers. W.-S.R. Lee **E** p215
Prediction models of standing wave patterns of distribution line carrier channels. S. Celozzi and M. D'Amore **C** p102
Scheduling delay protocols integrating voice and data on a bus LAN. S. Bolis, E.G. Economou and G. Philokyprou **I** p407
Self-supervised adaptive networks. S.P. Luttrell **F** p371
Statistical characterisation of a partitioned indoor radio channel. R. Ganesh and K. Pahlavan **I** p539
Time characteristics of IEEE 802.4 token bus protocol. P. Montuschi, L. Ciminiera and A. Valenzano **E** p81
Traceability for on-wafer s-parameter measurements. D.J. Bannister and M. Perkins **A** p232
Two trends in artificial neural networks. F. Fallside **F** p369

NOISE AND INTERFERENCE

A chirp modem incorporating interference excision. E.P. Darbyshire and G.F. Gott **I** p395
An improved Hessian matrix for recursive maximum likelihood ARMA estimation. G. Liang and D.M. Wilkes **F** p212
Application of frequency dependent Lyapunov equation to 2-dimensional problems. S. Tzafestas, A. Kanellakis and N. Theodorou **D** p197
Bit error rate performance of FSK-distribution systems with SL preamplifiers. A.A. Al-Orainy **J** p361
Capacity and coding for memories with real-time noisy defect information at encoder and decoder. M. Salehi **I** p113
Classification techniques for the extraction of nonperiodic transients from noise: an application in electromyography. N.B. Jones and G.H. Loudon **A** p74
Comparison of coherent and noncoherent modulation in the presence of phase noise. A.G. Burr **I** p147
Effect of system noise on the performance of a noncoherent monopulse processor. Jitedra Das R and Y. Yoganandam **F** p61
Extended source and load operating noise temperatures of nonlinear systems. T. Larsen **H** p121
Field rate equation and linewidth of semiconductor laser with inhomogeneous resonator medium. M. Claassen and W. Harth **J** p50
Filtering effects on permittivity profiles reconstructed by a spectral inverse scattering technique. J.M. Lee, S.Y. Kim and J.W. Ra **H** p507
Increased CDMA system capacity through adaptive cochannel interference regeneration and cancellation. R.S. Mowbray, R.D. Pringle and P.M. Grant **I** p515
Multipath propagation effects on digital radio equipped with a plane reflector repeater. Y. Serizawa, Y. Watanabe and S. Takeshita **I** p176
Multiple hops/symbol fast frequency-hopping spread spectrum multiple access with coding for indoor radio. M. Moeneclaey and J. Wang **I** p95
New parametric method of detecting random signals in unknown noise. Part 1: Asymptotic theory. Q.T. Zhang, K.M. Wong and S. Haykin **F** p351
New parametric method of detecting random signals in unknown noise. Part 2: Application to radar. Q.T Zhang, K.M. Wong and S. Haykin **F** p359
Noise analysis for digit slicing FFT (Reply). L. Stanković and R. Puzović **F** d278
Noise analysis for digit slicing FFT. Z.A.M. Sharrif, M. Othman and T.S. Theong **F** d278
Noise characteristics of *n*-channel deep-depletion mode MOS transistors. C. Carruthers and J. Mavor **G** p377
Noise in mixed continuous-time switched-capacitor sigma-delta modulators. V.F. Dias, G. Palmisano and F. Maloberti **G** p680
Noise temperatures of multiresponse systems. T. Larsen **H** p309
Performance analysis of wavelength division- and subcarrier-multiplexing (WDM-SCM) transmission using fibre Brillouin amplification. Y.-H. Lee, J. Wu, M.-S. Kao and H.-W. Tsao **J** p272
Performance evaluation of Rayleigh and log-normal GMSK signals in the presence of cochannel interference. P.P.S. Carter and A.M.D. Turkmani **I** p156
Precipitation scatter measurements from a transhorizon experiment at 11.2 GHz. M. Thurai and J.W.F. Goddard **H** p53
Probability of co-channel interference for selection diversity reception in the Nakagami *m*-fading channel. S. Okui **I** p91
Probability of error for *M*-branch macroscopic selection diversity. A.M.D. Turkmani **I** p71
Residual phase noise performance of X-band GaAs FET amplifiers at liquid nitrogen temperature. M. Mizan and R. McGowan **G** p37
Spread spectrum switching: low noise modulation technique for PWM inverter drives. J.T. Boys and P.G. Handley **B** p252
Using the coherence function for noise reduction. R. Le Bouquin and G. Faucon **I** p276

NONDESTRUCTIVE TESTING

Ultrasonic technique for sizing voids by using area functions. J. Yang and L.J. Bond **A** p45

NONLINEAR SYSTEMS

Design of output tracking via variable structure system: for plants with redundant inputs. Y-C Chen, P-L Lin and S Chang **D** p421
Extended source and load operating noise temperatures of nonlinear systems. T. Larsen **H** p121
Software based linearisation of thermistor type nonlinearity. D. Ghosh and D. Patranabis **G** p339

NUMERICAL ANALYSIS

Far-field computation from amplitude near-field data on two surfaces: cylindrical case. O.M. Bucci, G. D'Elia, G. Leone and R. Pierri **H** p143
Modified indirect boundary element technique and its application to electromagnetic potential problems. B. Song and J. Fu **H** p292
Numerical solution to three-dimensional inverse scattering for dielectric reconstruction purposes. S. Caorsi, G.L. Gragnani and M. Pastorino **H** p45
Uncertainty considerations in frequency and duration analysis for large hydrothermal generating systems. A.M. Leite da Silva, J. Coelho and A.C.G. Melo **C** p277

OPTICAL AMPLIFIERS

Harmonic and phase distortion of analogue amplitude-modulated signals in bulk near travelling-wave semiconductor optical amplifiers. J.A. Constable, I.H. White, A.N. Coles and D.G. Cunningham **J** p389
Investigation of a novel Bragg reflector: partly gain-coupled DBR filter. J. Willems, K. David, G. Morthier and R. Baets **J** p53
Performance analaysis of an all-optical gate using a multisection travelling wave amplifier. A. Paradisi and I. Montrosset **J** p42
Transmission-line laser modelling of semiconductor laser amplified optical communications systems. A.J. Lowery **J** p180

OPTICAL CABLES

Development of aerial fibre optic cables for operation on 400 kV power lines. A.J. Peacock and J.C.G. Wheeler **A** p304
Mathematical model of dry-band arcing on self-supporting, all-dielectric, optical cables strung on overhead power lines. C.N. Carter and M.A. Waldron **C** p185

OPTICAL MATERIALS

Effects of impurities on photocarrier mobility in $Bi_{12}SiO_{20}$. J.J. Sluss Jr, T.J. Tayag and T.E. Batchman **J** p357

OPTICAL SENSORS

Signal-feedback induced intensity modulation in a fibre optic gyro system. W. Jin and B. Culshaw **J** p318

OPTICAL SWITCHING

Active optical combiner switch. P.S. Mudhar, D.A.H. Mace, J. Singh, M.A. Fisher and M.J. Adams **J** p79
Optically driven photoconductive devices for power switching application. Part I: Theory and experimental results. H. Shakouri and J.J. Liou **G** p343
Optically driven photoconductive devices for power switching application. Part II: Thermal modelling including heat sink. J.J. Liou and J.S. Yuan **G** p350
Performance analaysis of an all-optical gate using a multisection travelling wave amplifier. A. Paradisi and I. Montrosset **J** p42
Photonics in switching: the next 25 years of optical communications?. J.E. Midwinter **J** p1

OPTICAL WAVEGUIDES

Semiconductor Raman laser pumped with a fundamental mode. K. Suto, T. Kimura and J. Nishizawa **J** p407

OPTICS

Analysis of bent step-index optical fibres by the beam propagation method. J. Yamauchi, M. Ikegaya and H. Nakano **J** p201
Beam-mode expansion applied to focal-region fields. J.W. Lamb **H** p513
Design considerations for an optically excited semiconductor microstrip gap at microwave frequencies. S.S. Gevorgian **J** p153
Distributed microwave filter realisation providing close to optimum performance for multigigabit optical communications. P.M. Lane, L.R. Watkins and J.J. O'Reilly **J** p280
Effect of beam power on imaging characteristics of Gaussian beams with a defocusing GRIN rod lens. Z. Chen, X. Chen and H. Lai **J** p309
Fundamental characteristics of InGaAs/InGaAsP-MQW-SCH-lasers emitting in 1.3 μm wavelength range. M. Möhrle, M. Rozenweig, H. Düser and D. Grützmacher **J** p29
GaAs MMIC optical receiver with embedded signal processing. I. Darwazeh, P.M. Lane, W.P. Marnane, P. Moreira, L.R. Watkins, M.H. Capstick and J.J. O'Reilly **G** p241

Gain and noise figure in analogue fibre-optic links. C.H. Cox J p238
Identification of passive intermodulation product generation on microwave reflecting surfaces. P.L. Aspden and A.P. Anderson H p337
Interlaboratory evaluation of theoretical modelling techniques for single-mode optical fibres. COST 217 Group J p353
Investigation of a novel Bragg reflector: partly gain-coupled DBR filter. J. Willems, K. David, G. Morthier and R. Baets J p53
Low-voltage InGaAs/InP multiple-quantum-well reflective Fabry–Perot modulators for optical communications at microwave frequencies. C.J.G. Kirkby, M.J. Goodwin, A.J. Moseley, D.J. Robbins, M.Q. Kearley and J. Thompson J p249
Optical fibre ring resonators: analysis of transient response. G.F. Levy J p313
Optical pulse interval and width modulation for analogue fibre communications. B. Wilson, Z. Ghassemlooy and J.C.S. Cheung J p376
Optical-microwave phase detection. T. Berceli J p296
Optimal multilayer filter design using real coded genetic algorithms. E. Michielssen, S. Ranjithan and R. Mittra J p413
PPM versus PCM for optical local-area networks. J.D. Martin and H.H. Hausien I p241
Performance analysis of wavelength division- and subcarrier-multiplexing (WDM-SCM) transmission using fibre Brillouin amplification. Y.-H. Lee, J. Wu, M.-S. Kao and H.-W. Tsao J p272
Propagation characteristics of graded-index elliptic-core fibres. R. Kamala and V. Kudalkar J p348
Reed–Solomon coded homodyne digital pulse position modulation. R.A. Cryan and R.T. Unwin I p140
Reflection of the surface mode from an abrupt-ended dielectric tube waveguide. A.B. Manenkov J p194
Reflection of the surface mode from an abruptly ended W-fibre. A.B. Manenkov J p101
Signal-feedback induced intensity modulation in a fibre optic gyro system. W. Jin and B. Culshaw J p318
Test of directional photoionisation models of second harmonic generation in optical fibres. N.M. Lawandy, T.J. Driscoll and C.L. Adler J p133
Transmission-line laser modelling of semiconductor laser amplified optical communications systems. A.J. Lowery J p180
Vector modes of D-shaped fibres. D. Marcuse, F. Ladouceur and J.D. Love J p117
Wide passband wavelength multi/demultiplexer at 1.3/1.55 μm based on etched Fresnel mirror. J. Aarnio, P. Heimala and I. Stuns J p228

OPTIMAL CONTROL

Design of algorithms for spatial-time reduction complexity of dynamic programming. L. Moreno, L. Acosta and J.L. Sánchez D p172
Efficient identification of binding inequality constraints in the optimal power flow Newton approach. O. Crisan and M.A. Mohtadi C p365
LOG optimal control design for uncertain systems. M.J. Grimble D p21
Optimal controller placements in large-scale linear systems. H.-D. Chiang, J.S. Thorp, J.-C. Wang, J. Lu and B. Aubert D p79
Youla parameterised two and a half degrees of freedom LQG controller and robustness improvement cost weighting. M.J. Grimble D p147

OPTIMISATION

Adaptive self-optimising pole shifting control algorithm. O.P. Malik, G.P. Chen, G.S. Hope, Y.H. Qin and G.Y. Xu D p429
Co-ordinated static and dynamic monitoring and optimisation of power systems using a parallel architecture and pattern recognition techniques. C.S. Chang C p197
Computer-based optimisation techniques for mass transit railway signalling design. D.C. Gill and C.J. Goodman B p261
Distributed microwave filter realisation providing close to optimum performance for multigigabit optical communications. P.M. Lane, L.R. Watkins and J.J. O'Reilly J p280
Enhanced Newton optimal power flow approach: experiences in Taiwan power system. Y.Y. Hong C p205
Improved objective function for device model parameter extraction. M.G. Middelhoek G p126
Layout optimisation for yield enhancement in on-chip-VLSI/WSI parallel processing. P. Mazumder E p21
Optimising control of fermentation processes. C. Kambhampati, M.T. Tham, G.A. Montague and A.J. Morris D p60
Polynomial optimisation of discrete-time multivariable regulators. K.J. Hunt D p190
Power combining efficiency and its optimisation. M.S. Gupta H p233
Simple algorithm for robust pole assignment in linear output feedback. G.-R. Duan D p465
Single iterative algorithm with global feedback for integrated system optimisation and parameter estimation of large scale industrial processes: optimality, convergence and simulation. Z. Amini, J. Lin and P.D. Roberts D p447

OPTOELECTRONICS

Demonstration of a smart pixel using DOES device technology. P.A. Kiely, G.W. Taylor, D.P. Docter, P.R. Claisse, T. Vang, P.A. Evaldsson, S.K. Sargood, S. Daryanani, P. Cooke and K.F. Brown-Goebeler J p208
Effect of surface recombination on microwave performance of laser-induced DBR gratings in silicon coplanar waveguides. W. Platte J p399
Generation and control of microwave signals by optical techniques. L. Goldberg, R.D. Esman and K.J. Williams J p288
Interest in AlGaInAs on InP for optoelectronic applications. M. Allovon and M. Quillec J p148
Optical networking and signal-processing applications of 790 nm self-pulsating laser diodes. R.J.S. Bates and S.D. Walker J p263
Performance of a coherent optical PSK receiver employing optical amplification. S.L. Miller J p215
Recent developments in the calibration of fast sampling oscilloscopes. D. Henderson, A.G. Roddie and A.J.A. Smith A p254
Wide passband wavelength multi/demultiplexer at 1.3/1.55 μm based on etched Fresnel mirror. J. Aarnio, P. Heimala and I. Stuns J p228

PERMITTIVITY

Filtering effects on permittivity profiles reconstructed by a spectral inverse scattering technique. J.M. Lee, S.Y. Kim and J.W. Ra H p507
Reconstruction of permittivity and conductivity profiles of a dielectric slab in the time domain by descent methods. M. Önder and M. Kuzuoğlu H p435
Resonant open ended coaxial line sensor for measuring complex permittivity. R.H. Johnson, J.L. Green, M.P. Robinson, A.W. Preece and R.N. Clarke A p261

PHASING AND PHASE CONTROL

Fast estimation of symmetrical components in real time. T. Łobos C p27

PICTURE PROCESSING AND PATTERN RECOGNITION

3-D object recognition using fuzzy quaternions. K.N. Ngan and S.B. Kang I p561
Application of image contours to three aspects of image processing: compression, shape recognition and stereopsis. S. Marshall I p1
Applying pattern recognition in distance relaying. Part 1: Concept. S.K. Chakravarthy, C.V. Nayar and N.R. Achuthan C p301
Applying pattern recognition in distance relaying. Part 2: Feasibility. S.K. Chakravarthy, C.V. Nayar and N.R. Achuthan C p306
BARTIN: minimising Bayes risk and incorporating priors using supervised learning networks. D.W. McMichael F p413
Border following: new definition gives improved borders. T.D. Haig, Y. Attikiouzel and M.D. Alder I p206
Design and VLSI implementation of a pattern classifier using pseudo 2D cellular automata. P. Tzionas, Ph. Tsalides and A. Thanailakis G p661
Detection of the extreme points of closed contours. X. Li, M.A. Ireton and C.S. Xydeas I p198
Dimension and structure of the speech space. R. Togneri, M.D. Alder and Y. Attikiouzel I p123
Distance measure for attributed fuzzy tournaments. A. Shaout and M. Suk E p373
Global study on data compression techniques for digital Chinese character patterns. R.H. Ju, I.C. Jou and M.K. Tsay E p1
Low bit-rate image sequence coding using spatial decomposition. P.J. Cordell and R.J. Clarke I p575
Multilayer parallel distributed pattern recognition system model using sparse RAM nets. Yang Guoqing, Chen Songcan and Lu Jun E p144
Pattern recognition applied to transient stability analysis of power systems with modelling including voltage and speed regulation. G. Garcia, J. Bernussou and M. Berbiche B p321
Simple two-stage method for the accurate location of Hough transform peaks. E.R. Davies E p242
Syntactic techniques for pattern recognition on sampled data signals. R.J. Hamilton, R.D. Pringle and P.M. Grant E p156
Using predicted irradiation profiles to extract shape information from infrared images. P. Foulkes I p569

PLASMAS

Current density on cathode surface of MPD thrusters. T.S. Sheshadri A p125
Electromagnetic field energy containment. V.G. Endean A p137
Temperature measurements of polymer substrates (PMMA) in an RF discharge. R. Rochotzki and M. Friedrich A p61

POLES AND ZEROS

On matched pole–zero discrete-time models. N. Hori, R. Cormier and K. Kanai D p273
Synthesis of pole-zero assignment control law with minimum control input. M.-H. Tu and C.-M. Lin D p291
Use of bicausal weighting sequences in least squares identification of open-loop unstable dynamic systems. B. Kouvaritakis and J.A. Rossiter D p328

POWER ELECTRONICS

Analysis of a Class E rectifier with a series capacitor. M.K. Kazimierczuk and W. Szaraniec G p269
Class-D zero-voltage-switching inverter with only one shunt capacitor. M.K. Kazimierczuk and W. Szaraniec B p449
Constant frequency, two-stage quasiresonant convertor. K.W.E. Cheng and P.D. Evans B p227
Fast measurement of real and reactive power in three-phase circuits. W.J. Bonwick and P.J. Hession A p51
Hybrid method to determine bus voltage and angle for line outage contingency evaluation. A.K. Jana, P.B. Dutta Gupta and G. Durga Prasad C p177
Investigations on turn-off effects in fast-recovery power diodes by modelling and simulation. S. Winternheimer and B. Laska B p55
New ZVS-PWM inverter switching limits and operating area. M. Metz, J. Roux, S. Ben Doua, J.P. Arches and H. Foch B p86
New approach for the analysis of a three-phase induction motor of different ratings connected to a single-phase supply. M.H. El-Maghraby, R.H. Thejel and M.M. Ibrahim B p145
Power supply and protection system for plasma stabilisation in the ASDEX Upgrade tokamak. A. Wieczorek, M. Blaumoser, R. Fink, J. Oswald, J. Schwarz and K.H. Vögtle B p131
Resolution corrected modulation: the practical realisation of ideal PWM waveforms. P.G. Handley and J.T. Boys B p402
Spread spectrum switching: low noise modulation technique for PWM inverter drives. J.T. Boys and P.G. Handley B p252
Steady-state analysis and performance of a saturable reactor assisted soft-switching DC–DC convertor. S. Hamada and M. Nakaoka B p281
Synthesis of phase-modulated resonant DC/AC inverters and DC/DC convertors. M.K. Kazimierczuk B p387
Tokamak poloidal field power supplies. J.B. Hicks and M.A. Laughton C p166
Waveform distortion and distortion power. S.Q. Sun and Q.R. Xiang B p303

POWER SYSTEM PROTECTION

General purpose fast decoupled power flow. J. Nanda, P.R. Bijwe, J. Henry and V. Bapi Raju C p87

POWER SYSTEMS AND PLANT

An efficient methodology for coherency-based dynamic equivalents. E.J.S. Pires de Souza and A.M. Leite da Silva C p371
Application of a power system stabiliser and a static VAR controller to a multimachine power system. O.P. Malik C p300
Capability chart for electrical power systems. E. Chiodo, A. Losi, R. Mongelluzzo and F. Rossi C p71
Contribution of single-phase motors to system fault level. C.B. Cooper, Z.A. Jweiles and G.A. Khan C p359

Environmentally constrained unit commitment. S. Kuloor, G.S. Hope and O.P. Malik C p122
Fast and accurate technique for power system state estimation. Adel Ali Abou El-Ela C p7
Fault detection in large-scale stochastic dynamic systems. M.F. Hassan, M.A. Sultan and M.S. Attia D p119
Fuzzy expert systems: an application to short-term load forecasting. Y.-Y. Hsu and K.-L. Ho C p471
Hybrid method to determine bus voltage and angle for line outage contingency evaluation. A.K. Jana, P.B. Dutta Gupta and G. Durga Prasad C p177
Minimisation of unbalanced and reactive currents in three-phase asymmetrical circuits with nonsinusoidal voltage. L.S. Czarnecki B p347
Neural net based determination of generator-shedding requirements in electric power systems. M. Djukanovic, D.J. Sobajic and Y.-H. Pao C p427
Neural network for estimation of harmonic components in a power system. S. Osowski C p129
Novel adaptive control scheme for improving power system stability. Y.H. Song C p423
Potential gradient measuring device based on a partial method. F. Žlahtič A p174
Principles of fault limitation by a resonant LC circuit. G.G. Karady C p1
Sequential simulation applied to composite system reliability evaluation. J.R. Ubeda and R.N. Allan C p81
Short-term scheduling of a pumped storage plant. L.A.F.M. Ferreira C p521
Tellegen theorem and modelling of power systems — PV buses and nonlinear formulas. L.A.F.M. Ferreira G p136
Towards static-security assessment of a large-scale power system using neural networks. S. Weerasooriya, M.A. El-Sharkawi, M. Damborg and R.J. Marks II C p64

POWER TRANSMISSION AND DISTRIBUTION

Adaptive, rule based fault diagnostician for power distribution networks. J. Ypsilantis, H. Yee and C.-Y. Teo C p461
Capability chart for electrical power systems. E. Chiodo, A. Losi, R. Mongelluzzo and F. Rossi C p71
Challenging algorithm for optimal reactive power dispatch through classical co-ordination equations. J. Nanda, L. Hari and M.L. Kothari C p93
Co-ordinated static and dynamic monitoring and optimisation of power systems using a parallel architecture and pattern recognition techniques. C.S. Chang C p197
Consumer rationality assumptions in the real-time pricing of electricity. A.K. David and Y.Z. Li C p315
Corona discharge streamer model. T.T. Nguyen C p31
Design model for electrical distribution systems considering renewable, conventional and energy storage units. A.G. Ter-Gazarian and N. Kagan C p499
Enhanced Newton optimal power flow approach: experiences in Taiwan power system. Y.Y. Hong C p205
External thermal resistance of power cable in nonuniform soil. P. Slaninka and V.T. Morgan A p117
Incorporation of a DC link in a composite system adequacy assessment — DC system modelling. R. Billinton and D.S. Ahluwalia C p211
Incorporation of a DC link in a composite system adequacy assessment — composite system analysis. R. Billinton and D.S. Ahluwalia C p221
Load flow analysis by G–S reduction and restoration method. A.S. Hasan, T. Krishnaparandhama and A.M. Howaidi C p383
Reactive power dispatch incorporating voltage stability. A.M. Chebbo, M.R. Irving and M.J.H. Sterling C p253
Real-time expert system for fault location on high voltage underground distribution cables. K.K. Kuan and K. Warwick C p235
System voltage and reactive power control: A computer-assisted manual/automatic concept. M.R. Bjelogrlić, M.S. Calović, P.M. Ristanović and B.S. Babić C p491
Unified power-flow control concept for flexible AC transmission systems. L. Gyugyi C p323
Voltage collapse proximity indicator: behaviour and implications. A.M. Chebbo, M.R. Irving and M.J.H. Sterling C p241

POWER UTILISATION AND INDUSTRIAL APPLICATIONS

Steady-state temperature rises of ONAN/ONAF/OFAF transformers. Z. Godec and R. Šarunac C p448

PROCESS CONTROL

Architecture for integrated process supervision. R. Leitch and C. Quek D p317
Data validation using orthogonal filters. J. Ragot, D. Maquin and D. Sauter D p47
Optimal setting for discrete PID controllers. K. Minh Vu D p31
Optimising control of fermentation processes. C. Kambhampati, M.T. Tham, G.A. Montague and A.J. Morris D p60

PRODUCT DESIGN

Improvements in ultra-broadband TEM coupler design. C.M. Potter and G. Hjipieris H p171

PULSE-CODE MODULATION

Neural network approach to DPCM system design for image coding. C.N. Manikopoulos I p501
Practical real-time PWM modulators: an assessment. P.G. Handley and J.T. Boys B p96
Reed–Solomon coded homodyne digital pulse position modulation. R.A. Cryan and R.T. Unwin I p140

RADAR AND RADIONAVIGATION

Adaptive censored greatest-of CFAR detection. S.D. Himonas F p247
Adaptive remote sensing with HF skywave radar. S.J. Anderson F p182
Analogue-to-digital convertor effects on airborne radar performance. B.N. Suresh Babu and C.M. Sorrentino F p73
Analytic comparison of four robust algorithms for post-detection integration. N. Levanon F p67
Comparison of adaptive target-tracking algorithms for phased-array radar. M. Munu, I. Harrison, D. Wilkin and M.S. Woolfson F p336
Detection and imaging of moving objects with synthetic aperture radar. Part 1: Optimal detection and parameter estimation theory. S. Barbarossa F p79
Detection and imaging of moving objects with synthetic aperture radar. Part 2: Joint time–frequency analysis by Wigner–Ville distribution. S. Barbarossa and A. Farina F p89
Developments in ocean wave measurement by HF radar. L.R. Wyatt and G.J. Holden F p170
Digital generation of high time-bandwidth product linear FM waveforms for radar altimeters. H.D. Griffiths and W.J. Bradford F p160
Effect of skywave interference on the coverage of Loran-C. J.D. Last, R.G. Farnworth and M.D. Searle F p306
Effect of system noise on the performance of a noncoherent monopulse processor. Jitedra Das R and Y. Yoganandam F p61
Extraction of sea state in shallow water using HF radar. G.J. Holden and L.R. Wyatt F p175
Fast Fourier transform techniques for solving the electric field integral equation for a periodic body. S.M. Wandzura, C.B. Thorington, R.S. Turley and L.R. Hamilton H p401
Improved algorithm for the deinterleaving of radar pulses. D.J. Milojević and B.M. Popović F p98
Improved rooting method for source localisation. J.A. Marks and K.M. Buckley F p321
Linear FMCW radar techniques. A.G. Stove F p343
Maximum-likelihood CFAR for Weibull background. R. Ravid and N. Levanon F p256
Monostatic radar cross-section spectra of a rotating-fan array, with tilted plate metal blades, in the PO/PTD approximation. T.-L. Yang and S.-S. Bor H p495
New parametric method of detecting random signals in unknown noise. Part 1: Asymptotic theory. Q.T. Zhang, K.M. Wong and S. Haykin F p351
New parametric method of detecting random signals in unknown noise. Part 2: Application to radar. Q.T Zhang, K.M. Wong and S. Haykin F p359
Parallel adaptive rooting algorithm for general frequency estimation and direction finding. J.-C. Ho, J.-F. Yang and M. Kaveh F p43
Pulsed radar return from a chaff cloud. T.A. Winchester F p315
Radar detection of targets located in a coherent K distributed clutter background. F. Aluffi Pentini, A. Farina and F. Zirilli F p239
Real-time processor for the Danish airborne SAR. J. Dall, J.H. Jørgensen, E.L. Christensen and S.N. Madsen F p115
Remote sensing by radar. H.D. Griffiths F p105
Statistical analysis of a subspace method for bearing estimation without eigendecomposition. P. Stoica and T. Söderström F p301
Statistical properties of the Mueller matrix of distributed targets. F.T. Ulaby, K. Sarabandi and A. Nashashibi F p136
Theory and design of interferometric synthetic aperture radars. E. Rodríguez and J.M. Martin F p147
WASAR: a wide-angle SAR processor. G. Franceschetti, R. Lanari, V. Pascazio and G. Schirinzi F p107
Wide-swath SAR. A. Currie and M.A. Brown F p122

RADIATION

Highly efficient technique for solving radiation and scattering problems. Y. Chen, T.L. Simpson and T.Q. Ho H p7
Large-current radiators. H.F. Harmuth and N.J. Mohamed H p358
Performance prediction and function recovery of CMOS circuits damaged by Co-60 irradiation. K.-S. Chang-Liao and J.-G. Hwu G p319
Radiation characteristics of a circular waveguide containing a chiral medium. T.C.K. Rao H p1
Systematic approach to control feed scattering and multiple reflections in symmetrical primary-fed reflector antennas. A. Moldsvor and P.-S. Kildal H p65
The effect of substrate resistivity on threshold voltage shifts due to radiation-induced damage in IGFET. A.D. Savio, P.K. Bhattacharya, G.S. Kousik and R.P. Nandakumar G p400

RADIO ASTRONOMY

New approach to constructing two-dimensional aperture synthesis systems. L.E. Kopilovich F p365

RADIO-WAVE PROPAGATION (GROUND WAVE)

Path integral analysis of paraxial radiowave propagation over a cliff edge. D.E. Eliades H p84

RADIO-WAVE PROPAGATION (MICROWAVE)

Comparison of experimental and theoretical scattering effects from melting ice spheres at microwave and millimetre-wave frequencies. P.N. Fletcher, P.J. Hardaker, L.J. Auchterlonie and A.R. Holt H p545
Paraxial radio-wave propagation over a ridge or valley. D.E. Eliades H p424
Scattering from lossy dielectric cylinders using a multifilament current model with impedance boundary conditions. M. Ouda and A. Sebak H p429

RADIO-WAVE PROPAGATION (MILLIMETRE WAVE)

Comparison of experimental and theoretical scattering effects from melting ice spheres at microwave and millimetre-wave frequencies. P.N. Fletcher, P.J. Hardaker, L.J. Auchterlonie and A.R. Holt H p545

RADIO-WAVE PROPAGATION (TERRAIN EFFECTS)

VHF/UHF radiowave propagation through forests: modelling and experimental observations. S.S. Seker H p72

RADIO-WAVE PROPAGATION (TROPOSPHERIC)

Exact ray path calculations using realistic ionospheres. P.L. Dyson and J.A. Bennett H p407
Statistical characterisation of a partitioned indoor radio channel. R. Ganesh and K. Pahlavan I p539

RADIOCOMMUNICATION

A chirp modem incorporating interference excision. E.P. Darbyshire and G.F. Gott I p395
A comparison study of low bit rate DE-QPSK, TCM 8-ary PSK and 16-ary DE-QAM fully digital demodulators operating over a land mobile satellite link. P. Fines and A.H. Aghvami I p319
A packet reservation multiple access protocol for integrated speech and data transmission. W.C. Wong and D.J. Goodman I p607
Busy code broadcasting and sensing protocol for collision-free CDMA packet

radio networks and its performance analysis. X.H. Chen and J. Oksman **I** p613
Capacity of time-space switched cellular radio link systems for metropolitan area networks. J. Zander and K.-A. Åhl **I** p533
Convolutionally encoded FFH-MFSK: demodulation and frequency tracking over frequency-varying jammed channels. J.A. Gibbs and S.J. Braithwaite **I** p386
Decoding metrics for slow frequency-hopped DPSK systems. Yu T. Su **I** p525
Examination of an adaptive DFE and MLSE/near-MLSE for fading multipath radio channels. P.K. Shukla and L.F. Turner **I** p418
IF digital generation of FMCW waveforms for wideband channel characterisation. S. Salous **I** p281
Increased CDMA system capacity through adaptive cochannel interference regeneration and cancellation. R.S. Mowbray, R.D. Pringle and P.M. Grant **I** p515
Monte Carlo simulation of direct sequence spread spectrum for indoor radio communication in a Rician fading channel. H.S. Misser, A. Kegel and R. Prasad **I** p620
Multipath propagation effects on digital radio equipped with a plane reflector repeater. Y. Serizawa, Y. Watanabe and S. Takeshita **I** p176
Multiple hops/symbol fast frequency-hopping spread spectrum multiple access with coding for indoor radio. M. Moeneclaey and J. Wang **I** p95
Performance evaluation of Rayleigh and log-normal GMSK signals in the presence of cochannel interference. P.P.S. Carter and A.M.D. Turkmani **I** p156
Performance of MPSK trellis-coded modulation in Rayleigh fading with an imperfect phase reference. K.Y. Chan and A. Bateman **I** p329
Precipitation scatter measurements from a transhorizon experiment at 11.2 GHz. M. Thurai and J.W.F. Goddard **H** p53
Probability of co-channel interference for selection diversity reception in the Nakagami *m*-fading channel. S. Okui **I** p91
Probability of error for *M*-branch macroscopic selection diversity. A.M.D. Turkmani **I** p71
Slotted ALOHA land-mobile radio networks with site diversity. J.-P.M.G. Linnartz **I** p58
Spectral efficiency of *M*-QAM in frequency reuse radio systems. S.W. Wales **I** p381
Statistical characterisation of a partitioned indoor radio channel. R. Ganesh and K. Pahlavan **I** p539
Teletraffic performance of microcellular personal communication networks. R. Steele and M. Nofal **I** p448
Throughput analysis and protocol design for CSMA and BTMA protocols under noisy environments. J.-H. Huang and L. Kleinrock **I** p289
Throughput analysis of some mobile packet radio protocols in Rician fading channels. R. Prasad and C.-Y. Liu **I** p297
Transmission of digitally encoded speech at 1.2 Kbaud for PCN. L. Hanzo, R. Salami, R. Steele and P.M. Fortune **I** p437
Use of code sensing technique in the receiver-based spreading code protocol and its performance analysis. X.H. Chen, W.X. Lu and J. Oksman **I** p85
Using the coherence function for noise reduction. R. Le Bouquin and G. Faucon **I** p276

RADOMES

Analysis of triangular patch antennas including radome effects. H.R. Hassani and D. Mirshekar-Syahkal **H** p251

RAILWAY ELECTRIFICATION AND TRANSPORTATION

Computer-based optimisation techniques for mass transit railway signalling design. D.C. Gill and C.J. Goodman **B** p261
Correspondence: Unbalance and harmonic studies for the channel tunnel railway system. O. Hamoud **B** p418
Fixed-voltage thyristor convertor rolling-stock transformers to control DC traction motors. D.J. Marsden **B** p209
Network switching and voltage evaluation using an expert system in AC railway systems. C.S. Chang, T.T. Chan and K.K. Lee **B** p1
Three-phase motor in railway traction. M.C. Duffy **A** p329
Variable-voltage diode convertor rolling-stock transformers to control DC traction motors. D.J. Marsden **B** p197

RECEIVERS

Asynchronous transfer mode receiver. M. Hill, A. Cantoni and T. Moors **E** p401
Multigigabit optically preamplified receiver designs with improved timing tolerance. C.R. Medeiros, R.S. Fyath and J.J. O'Reilly **J** p143

RELIABILITY

Incorporation of a DC link in a composite system adequacy assessment — DC system modelling. R. Billinton and D.S. Ahluwalia **C** p211
Load modelling for generating capacity reliability evaluation using the frequency and duration method. J. Nahman and M. Graovac **C** p529
Overall adequacy assessment of an electric power system. R. Billinton and L. Goel **C** p57
Uncertainty considerations in frequency and duration analysis for large hydrothermal generating systems. A.M. Leite da Silva, J. Coelho and A.C.G. Melo **C** p277

RELUCTANCE MOTORS

Influence of number of poles per phase in switched reluctance motors. H.C. Lovatt and J.M. Stephenson **B** p307
Steady-state operating limits of three phase self-excited reluctance generator. A.I. Alolah **C** p261

REMOTE SENSING

Adaptive remote sensing with HF skywave radar. S.J. Anderson **F** p182
Detection and imaging of moving objects with synthetic aperture radar. Part 1: Optimal detection and parameter estimation theory. S. Barbarossa **F** p79
Detection and imaging of moving objects with synthetic aperture radar. Part 2: Joint time–frequency analysis by Wigner–Ville distribution. S. Barbarossa and A. Farina **F** p89
Real-time processor for the Danish airborne SAR. J. Dall, J.H. Jørgensen, E.L. Christensen and S.N. Madsen **F** p115
Remote sensing by radar. H.D. Griffiths **F** p105
Statistical properties of the Mueller matrix of distributed targets. F.T. Ulaby, K. Sarabandi and A. Nashashibi **F** p136

SATELLITE LINKS AND SPACE COMMUNICATION

Comparison of coherent and noncoherent modulation in the presence of phase noise. A.G. Burr **I** p147
Performance evaluation of pragmatic TCM codes through band-limited nonlinear satellite channel: a computer simulation approach. V.K. Dubey, N.K. Lim and E. Gunawan **I** p15
Performance of 8-PSK trellis codes over nonlinear fading mobile satellite channels. B. Vucetic and J. Nicolas **I** p462
Precipitation scatter measurements from a transhorizon experiment at 11 2 GHz. M. Thurai and J.W.F. Goddard **H** p53

SEMICONDUCTOR DEVICES AND MATERIALS

CMOS ring oscillators as teaching tools. D.F. Moore, D.M. Holburn, C.E. Nockolds and G.C. Rosolen **G** p199
Characterisation of GaAs FET and HEMT chips and packages for accurate hybrid circuit design. J.P. Bridge, P.H. Ladbrooke and A.J. Hill **H** p330
Design considerations for an optically excited semiconductor microstrip gap at microwave frequencies. S.S. Gevorgian **J** p153
Design of a residue arithmetic multiplier. H.M. Razavi and J. Battelini **G** p581
Design, selection and implementation of flash erase EEPROM memory cells. A.A.M. Amin **G** p370
Effects of impurities on photocarrier mobility in $Bi_{12}SiO_{20}$. J.J. Sluss Jr, T.J. Tayag and T.E. Batchman **J** p357
Five-parameter DC GaAs MESFET model for nonlinear circuit design. J. Rodriguez-Tellez and P.J. England **G** p325
Frequency stabilisation of visible output laser diodes. P.M. Smowton, B. Thomas and R.H. Pratt **J** p75
Generation, design and tuning of OTA-C high-frequency sinusoidal oscillators. B. Linares-Barranco, A. Rodriguez-Vázquez, E. Sánchez-Sinencio and J.L. Huertas **G** p557
Improved objective function for device model parameter extraction. M.G. Middelhoek **G** p126
Investigations on turn-off effects in fast-recovery power diodes by modelling and simulation. S. Winternheimer and B. Laska **B** p55
Lateral mode discrimination in AlGaInP selectively buried ridge waveguide lasers. D.P. Bour and G.A. Evans **J** p71
New thyristor assisted diverter switch for on load transformer tap changers. G.H. Cooke and K.T. Williams **B** p507
Optically driven photoconductive devices for power switching application. Part I: Theory and experimental results. H. Shakouri and J.J. Liou **G** p343
Optically driven photoconductive devices for power switching application. Part II: Thermal modelling including heat sink. J.J. Liou and J.S. Yuan **G** p350
Photoacoustic and photothermal deflection spectroscopy of semiconductors. G. Amato, G. Benedetto, L. Boarino, M. Maringelli and R. Spagnolo **A** p161
Polarisation correction applied to scalar analysis of semiconductor rib waveguides. T.M. Benson, P.C. Kendall, M.A. Matin and M.S. Stern **J** p39
Rigorous effective index method for semiconductor rib waveguides. T.M. Benson, R.J. Bozeat and P.C. Kendall **J** p67
Semiconductor device physics and modelling. Part 1: Overview of fundamental theories and equations. J.J. Liou **G** p646
Semiconductor device physics and modelling. Part 2: Overview of models and their applications. J.J. Liou **G** p655
Silicon-on-sapphire MOSFET model for analogue circuit simulation. R. Howes, W. Redman-White, K.G. Nichols, S.J. Murray and P.J. Mole **G** p33
Simple analytical model for short-channel MOS devices. H.-C. Chow, W.-S. Feng and J.B. Kuo **G** p405
Study and characterisation of MOSFET integrated magnetodetector based on hot carrier detection. A. El-Hennawy and F. Al-Ghamdi **G** p119
Very-high-speed VLSI 2s-complement multiplier using signed binary digits. W. Balakrishnan and N. Burgess **E** p29

SEMICONDUCTOR LASERS

Analysis of two forms of gain nonlinearities on the dynamic response of a laser diode for high frequency applications. Y.C.A. Wong and K.A. Shore **J** p243
Bit error rate performance of FSK-distribution systems with SL preamplifiers. A.A. Al-Orainy **J** p361
Crosstalk reduction in semiconductor laser amplifiers. M.E. Bray and J.E. Carroll **J** p93
Field rate equation and linewidth of semiconductor laser with inhomogeneous resonator medium. M. Claassen and W. Harth **J** p50
High-power monolithic phase-locked arrays of antiguided semicondcutor diode lasers. D. Botez **J** p14
Phase-locking phenomena in coupled waveguide semiconductor lasers. Ziping Jiang and M. McCall **J** p88
Very low threshold current operation of semiconductor ring lasers. T. Krauss and P.J.R. Laybourn **J** p383

SIGNAL PROCESSING

A cumulant based TK method for the harmonic retrieval problem. Z. Shi and F. Fairman **F** p221
Adaptive linear phase complex–real steered algorithms. X. Chen and E.L. Dagless **F** p283
Adaptive quantisation for one-bit sigma-delta modulation. J. Yu, M.B. Sandler and R.E. Hawken **G** p39
Algorithmic engineering in adaptive signal processing. J.G. McWhirter **F** p226
An improved Hessian matrix for recursive maximum likelihood ARMA estimation. G. Liang and D.M. Wilkes **F** p212
Analysis and simulation of automatic bias reduction circuit in a coherent detector. J. Mar and H.J. Yuh **G** p57
Application of EKF to parameter and state estimation of pmsm drive. L. Salvatore and S. Stasi **B** p155
Coherent all-fibre optical beam-steering technique for phased-array antennas. M. Völker **J** p305
DFT time-domain interpolation. T.J. Cavicchi **F** p207
Design of an analogue subthreshold multiplier suitable for implementing an artificial neural network. R.L. Walke, S.F. Quigley and P.W. Webb **G** p261
Efficient computation of the split-radix FFT. A.N. Skodras and A.G. Constantinides **F** p56
Efficient convertors for residue and quadratic-residue number systems. T. Stouraitis **G** p626
Extended polyphase structures for multirate DSP. W.H. Yim, F.P. Coakley and B.G. Evans **F** p273
Fast implementation of root-form eigen-based methods for detecting closely spaced sources. T.-S. Lee **F** p288

Fast learning-algorithms for a self-optimising neural network with an application to isolated word recognition. T. Gramss F p391
Hermite polynomials for signal reconstruction from zero-crossings. Part 1: One-dimensional signals. Y.V. Venkatesh I p587
High-performance bit-serial adders and multipliers. G. Bi and E.V. Jones G p109
Importance of the exclusion of the desired signal from the control of a generalised sidelobe canceller. K. Takao and C.S. Boon F p265
Improved algorithm for the deinterleaving of radar pulses. D.J. Milojević and B.M. Popović F p98
Low-voltage InGaAs/InP multiple-quantum-well reflective Fabry–Perot modulators for optical communications at microwave frequencies. C.J.G. Kirkby, M.J. Goodwin, A.J. Moseley, D.J. Robbins, M.Q. Kearley and J. Thompson J p249
Moving discrete Fourier transform. B.G. Sherlock and D.M. Monro F p279
New synthesis techniques for high order all-pole filters. M. Sandler G p9
Noise characteristics of *n*-channel deep-depletion mode MOS transistors. C. Carruthers and J. Mavor G p377
Nonuniform sampling and study of transient systems response. P. Sircar and A.C. Ranade F p49
Novel A/D convertor with median filtering of programmable window length. B.D. Liu, C.S. Tsay, C.H. Chen and R.L. Fuh G p621
Optical fibre ring resonators: analysis of transient response. G.F. Levy J p313
Optical networking and signal-processing applications of 790 nm self-pulsating laser diodes. R.J.S. Bates and S.D. Walker J p263
Orthogonal least-squares algorithm for training multioutput radial basis function networks. S. Chen, P.M. Grant and C.F.N. Cowan F p378
Parallel adaptive rooting algorithm for general frequency estimation and direction finding. J.-C. Ho, J.-F. Yang and M. Kaveh F p43
Performance evaluation of pragmatic TCM codes through band-limited nonlinear satellite channel: a computer simulation approach. V.K. Dubey, N.K. Lim and E. Gunawan I p15
Performance of modified Faddeev algorithm on optical processors. A.K. Ghosh and P. Paparao J p325
Performance of signature registers in the presence of correlated errors. G. Edirisooriya and J.P. Robinson E p393
Proof-of-concept model of a coherent optical beam-forming network. W.S. Birkmayer and M.J. Wale J p301
Rational sampling rate conversion structures with minimum delay requirements. G. Bi, F.P. Coakley and B.G. Evans E p477
Real-time simulation of videophone image coding algorithms on reconfigurable multicomputers. J.A. Elliott, C. Cubiss, P.M. Grant and J.T.E. McDonnell E p269
Selection of orthonormal transforms for improving the performance of the transform domain normalised LMS algorithm. B. Farhang-Boroujeny and S. Gazor F p327
Self-supervised adaptive networks. S.P. Luttrell F p371
Some aspects of array signal processing. S. Haykin, J.P. Reilly, V. Kezys and E. Vertatschitsch F p1
Two trends in artificial neural networks. F. Fallside F p369
Use of Kohonen self-organising feature maps for HMM parameter smoothing in speech recognition. Z. Zhao and C.G Rowden F p385
VLSI implementation of mod-*p* multipliers using homomorphisms and hybrid cellular automata. B. Srisuchinwong, Ph. Tsalides, T.A. York, P.J. Hicks and A. Thanailakis E p486

SIMULATION

An efficient methodology for coherency-based dynamic equivalents. E.J.S. Pires de Souza and A.M. Leite da Silva C p371
Cathodic protection of extended buried conductor networks: a new design method. F. Tosato and S. Quaia B p443
Class of stabilising decentralised controllers for interconnected dynamical systems. M. Aldeen D p125
Comparison of coherent and noncoherent modulation in the presence of phase noise. A.G. Burr I p147
Computer modelling of microwave cooking using the transmission-line model. R.A. Desai, A.J. Lowery, C. Christopoulos, P. Naylor, J.M.V. Blanshard and K. Gregson A p30
Computer studies of the performance of transformer windings against chopped impulse voltages. S. Munshi, C.K. Roy and J.R. Biswas C p286
Coupling processes in circular open chirowaveguides. H. Cory and T. Tamir H p165
Design of basic CMOS cell library. J.W.W. Chong and R.G. Forbes G p256
Digital model for transient studies of a three-phase five-legged transformer. X.S. Chen and P. Neudorfer C p351
Discrete transform technique for solving nonlinear circuits and equations. S.Y.R. Hui and C. Christopoulos A p321
Finite difference method and Pspice simulation applied to the coaxial cable in a linear temperature gradient. H. Mokhtari, A. Nyeck, C. Tosser-Roussey and A. Tosser-Roussey A p39
Five-parameter DC GaAs MESFET model for nonlinear circuit design. J. Rodriguez-Tellez and P.J. England G p325
General purpose fast decoupled power flow. J. Nanda, P.R. Bijwe, J. Henry and V. Bapi Raju C p87
High-performance speed controller for voltage-source inverter-fed induction motor drives. C.M. Liaw and C.W. Tseng B p220
Impact and transient excitation of magnetic plate including hysteresis and eddy-current action. D. O'Kelly A p99
Improved TLM method for the solution of coupled circuit equations. J.E. Dolan A p315
Improved objective function for device model parameter extraction. M.G. Middelhoek G p126
Improvement of finite difference methods for step-index optical waveguides. C. Vassallo J p137
Incorporation of a DC link in a composite system adequacy assessment — DC system modelling. R. Billinton and D.S. Ahluwalia C p211
Incorporation of a DC link in a composite system adequacy assessment — composite system analysis. R. Billinton and D.S. Ahluwalia C p221
Load modelling for generating capacity reliability evaluation using the frequency and duration method. J. Nahman and M. Graovac C p529
Maximum likelihood estimation of synchronous machine parameters and study of noise effect from DC flux decay data. A. Keyhani and S.I. Moon C p76
Model validation by the distortion method: linear state space systems. R.G. Cameron D p296
Modelling and algorithms for spare allocation in reconfigurable VLSI. S.-Y. Kuo and W.K. Fuchs E p323
Modelling and test generation for MOS transmission gate stuck-open faults. M. Belkadi and H.T. Mouftah G p17
Monte Carlo simulation of direct sequence spread spectrum for indoor radio communication in a Rician fading channel. H.S. Misser, A. Kegel and R. Prasad I p620
Neural adaptive congestion control for broadband ATM networks. X. Chen and I.M. Leslie I p233
New model for peak demand forecasting applied to highly complex load characteristics of a fast developing area. E.H. Barakat, J.M. Al-Qassim and S.A. Al Rashed C p136
Nonuniform sampling and study of transient systems response. P. Sircar and A.C. Ranade F p49
Performance analysis of slotted rings with finite buffers. W.-S.R. Lee E p215
Probabilistic approach for hot electron transport. C.F. Fernandes and H.A. Santos G p569
Rotor flux observation and control in squirrel-cage induction motor: reliability with respect to parameters variations. X. Roboam, C. Andrieux, B. De Fornel and J.C. Hapiot D p363
Semiconductor device physics and modelling. Part 1: Overview of fundamental theories and equations. J.J. Liou G p646
Semiconductor device physics and modelling. Part 2: Overview of models and their applications. J.J. Liou G p655
Sequential simulation applied to composite system reliability evaluation. J.R. Ubeda and R.N. Allan C p81
Simple scalar finite element approach to optical rib waveguides. M. Koshiba, H. Saitoh, M. Eguchi and K. Hirayama J p166
Tellegen theorem and modelling of power systems — PV buses and nonlinear formulas. L.A.F.M. Ferreira G p136

SONICS AND ULTRASONICS

Ultrasonic technique for sizing voids by using area functions. J. Yang and L.J. Bond A p45

SPEECH SYNTHESIS

Computationally simple ADPCM based on exponential power estimator. G. Mathew, S.V. Narasimhan and A.P. Shivaprasad I p53
Dimension and structure of the speech space. R. Togneri, M.D. Alder and Y. Attikiouzel I p123
Measurements of vocal tract shapes using magnetic resonance imaging. A.R. Greenwood, C.C. Goodyear and P.A. Martin I p553
Mixed Fourier/Walsh transform scheme for speech coding at 4.0 kbit/s. A.S. Spanias and P.C. Loizou I p473
Spectral coding by LSP frequencies — scalar and segmented VQ-methods. R. Hagen and P. Hedelin I p118
Use of Kohonen self-organising feature maps for HMM parameter smoothing in speech recognition. Z. Zhao and C.G Rowden F p385

STABILITY

CGPC with guaranteed stability properties. H. Demircioğlu and D.W. Clarke D p371
Discrete time system stability analysis using polynomial arrays. X. Hu, H. Yee and T.S. Ng D p395
Frequency stabilisation of visible output laser diodes. P.M. Smowton, B. Thomas and R.H. Pratt J p75
Pattern recognition applied to transient stability analysis of power systems with modelling including voltage and speed regulation. G. Garcia, J. Bernussou and M. Berbiche B p321

STEPPING MOTORS

Analysis of current waveforms in permanent-magnet synchronous/stepping motors and synthesis of a stabilising signal. I.E.D. Pickup, A.P. Russell and Y.-S. Kwon B p534
Analysis of frequency- and amplitude-modulation in the stabilisation of permanent-magnet synchronous/stepping motors. I.E.D. Pickup and A.P. Russell B p336
Force-displacement characteristics of linear stepping motors. T. Yokozuka and E. Baba B p37

SUPERCONDUCTIVITY

Analysis of magnetic fields in the slotted structure of a superconducting AC generator. S.K. Safi and J.R. Bumby C p411
Superconducting microwave resonators. M.J. Lancaster, T.S.M. Maclean, Z. Wu, A. Porch, P. Woodall and N.NcN. Alford H p149
Supercooled and superconducting small-loop and dipole antennas. M.J. Lancaster, Z. Wu, T.S.M. Maclean and Y. Huang H p264

SWITCHED CAPACITOR FILTERS

Compatibility of switched capacitor filters with VLSI processes. J.C.M. Bermudez, M.C. Schneider and C.G. Montoro G p413
Fundamental limitations of switched-capacitor sigma-delta modulators. V.F. Dias, G. Palmisano, P. O'Leary and F. Maloberti G p27

SWITCHES AND SWITCHING THEORY

Dynamic characteristics of the class E DC/DC convertor using sampled-data modelling. A.J. Forsyth, S.H. Ma and Y.T. Leung B p409
High-voltage line-dropping switching stresses. A.D. Stokes C p21
Network switching and voltage evaluation using an expert system in AC railway systems. C.S. Chang, T.T. Chan and K.K. Lee B p1
New ZVS-PWM inverter switching limits and operating area. M. Metz, J. Roux, S. Ben Doua, J.P. Arches and H. Foch B p86
New thyristor assisted diverter switch for on load transformer tap changers. G.H. Cooke and K.T. Williams B p507
On the reduction of the programming cost of soft switches for reconfigurable two-dimensional arrays. T. Liu and F. Lombardi E p262
Parameter identification approach to fault diagnosis of switched capacitor circuits. A.E. Salama and F.Z. Amer G p467
Resolution corrected modulation: the practical realisation of ideal PWM waveforms. P.G. Handley and J.T. Boys B p402
Simplification of switching functions expressed in Reed–Muller algebraic form. D.H. Green and G.A. Khuwaja E p511

SYNCHRONOUS MOTORS

Analysis of current waveforms in permanent-magnet synchronous/stepping motors and synthesis of a stabilising signal. I.E.D. Pickup, A.P. Russell and Y.-S. Kwon B p534

Analysis of frequency- and amplitude-modulation in the stabilisation of permanent-magnet synchronous/stepping motors. I.E.D. Pickup and A.P. Russell **B** p336
Comparison of two control strategies in development of high-torque electronically commutated drive. T.S. Low, K.W. Lim, M.F. Rahman and K.J. Binns **B** p26
Influence of saturation in brushless permanent-magnet motor drives. B.J. Chalmers **B** p51
Maximum likelihood estimation of synchronous machine parameters and study of noise effect from DC flux decay data. A. Keyhani and S.I. Moon **C** p76
Theoretical aspects of control of synchronous reluctance machines. R.E. Betz **B** p355

SYSTEM PROTECTION

Applying pattern recognition in distance relaying. Part 1: Concept. S.K. Chakravarthy, C.V. Nayar and N.R. Achuthan **C** p301
Applying pattern recognition in distance relaying. Part 2: Feasibility. S.K. Chakravarthy, C.V. Nayar and N.R. Achuthan **C** p306
Network switching and voltage evaluation using an expert system in AC railway systems. C.S. Chang, T.T. Chan and K.K. Lee **B** p1
Switching overvoltages and risk of flashover on Yugoslav 400 kV transmission lines. Z.S. Zdravković and P.I. Vukelja **C** p141

TELECOMMUNICATION

Active optical combiner switch. P.S. Mudhar, D.A.H. Mace, J. Singh, M.A. Fisher and M.J. Adams **J** p79
Alternative signal processor arithmetic for modified implementation of a normalised adaptive channel equaliser. H. Hahn, B.J. Hosticka and D. Timmermann **F** p36
BER performance analysis of 4-CCL and 5-CCL codes in slotted indoor CDMA systems. X.-H. Chen and J. Oksman **I** p79
Fixed point model for adaptive token passing bus protocol. P.G. Harrison and F. Naraghi **E** p50
Neural adaptive congestion control for broadband ATM networks. X. Chen and I.M. Leslie **I** p233
PPM versus PCM for optical local-area networks. J.D. Martin and H.H. Hausien **I** p241
Performance analysis of interconnected CSMA/CD local area networks. E.D. Sykas and G.L. Lyberopoulos **I** p181
Scheduling delay protocols integrating voice and data on a bus LAN. S. Bolis, E.G. Economou and G. Philokyprou **I** p407
Slotted ALOHA land-mobile radio networks with site diversity. J.-P.M.G. Linnartz **I** p58

THYRISTORS

Fixed-voltage thyristor convertor rolling-stock transformers to control DC traction motors. D.J. Marsden **B** p209
Influence of gate drive and anode circuit conditions on the turn-off performance of GTO thyristors. C.M. Johnson and P.R. Palmer **B** p62
Principles of fault limitation by a resonant LC circuit. G.G. Karady **C** p1
Thyristor-driven pulsers for multikilowatt average power lasers. H.M. Von Bergmann and P.H. Swart **B** p123

TRANSDUCERS

Three-dimensional displacement and force transducer. M.J. Warren-Forward, R.M. Goodall and D.J. Pratt **A** p21

TRANSFORMERS

Analysis of partial discharge pulse distribution along transformer windings using digital filtering techniques. Q. Su and R.E. James **C** p402
Application of modified modal theory in the modelling of practical transformers. D.J. Wilcox, W.G. Hurley, T.P. McHale and M. Conlon **C** p513
Calculation of the transient performance of protective current transformers including core hysteresis. D. O'Kelly **C** p455
Computer studies of the performance of transformer windings against chopped impulse voltages. S. Munshi, C.K. Roy and J.R. Biswas **C** p286
Digital model for transient studies of a three-phase five-legged transformer. X.S. Chen and P. Neudorfer **C** p351
Fixed-voltage thyristor convertor rolling-stock transformers to control DC traction motors. D.J. Marsden **B** p209
Modified theory of modal analysis for the modelling of multiwinding transformers. D.J. Wilcox and T.P. McHale **C** p505
Numerical approximation of heat run test results of transformers by means of double exponential and power functions. R. Sobocki **C** p469
Open wye-open delta and open delta-open delta transformer models for rigorous distribution system analysis. T.-H. Chen and J.-D. Chang **C** p227
Passive input current waveshaping method for three-phase diode rectifiers. A.R. Prasad, P.D. Ziogas and S. Manias **B** p512
Simulation of multilimb power transformers in the harmonic domain. A. Medina and J. Arrillaga **C** p269
Steady-state temperature rises of ONAN/ONAF/OFAF transformers. Z. Godec and R. Šarunac **C** p448
Variable-voltage diode convertor rolling-stock transformers to control DC traction motors. D.J. Marsden **B** p197

TRANSIENTS

Analysis of transients in frequency-dependent interconnections and planar circuits with nonlinear loads. Q. Gu, D.M. Sheen and S.M. Ali **H** p38
Classification techniques for the extraction of nonperiodic transients from noise: an application in electromyography. N.B. Jones and G.H. Loudon **A** p74
Control of distributed parameter systems: localisation method. V.D. Yurkevich **D** p141
Correction to 'short-pulse excitation of reflector antennas'. R.C. Hansen and E. Kramer **H** p119
Efficient inverse Laplace transform algorithm for transient overvoltage calculation. A. Ahmad, P. Johannet and Ph. Auriol **C** p117
Interturn voltages in machine windings evaluated from on-site test results and computer simulation. K.J. Cornick, J.L. Guardado and P. Bekaert **B** p238
Low temperature behaviour of channel transit time constant in MOS transistor. A. Srivastava **G** p104
New model for single-unit representation of induction motor loads, including skin effect, for power system transient stability studies. M. Akbaba and S.Q. Fakhro **B** p521
Two-level state estimation for large power system. Part 1: Algorithms and Part 2: Computational experience. M.S. Kurzyn **C** p175

TRANSISTORS

Low temperature behaviour of channel transit time constant in MOS transistor. A. Srivastava **G** p104
Noise characteristics of *n*-channel deep-depletion mode MOS transistors. C. Carruthers and J. Mavor **G** p377
Radiation hardened high performance CMOS VLSI circuit designs. H. Hatano **G** p287
The effect of substrate resistivity on threshold voltage shifts due to radiation-induced damage in IGFET. A.D. Savio, P.K. Bhattacharya, G.S. Kousik and R.P. Nandakumar **G** p400

TRANSMISSION LINES

Application of the method of lines to planar transmission lines in waveguides with composite cross-sectional geometries. M.A. Thorburn, A. Biswas and V.K. Tripathi **H** p542
Corona discharge streamer model. T.T. Nguyen **C** p31
Modelling and test generation for MOS transmission gate stuck-open faults. M. Belkadi and H.T. Mouftah **G** p17
Switching overvoltages and risk of flashover on Yugoslav 400 kV transmission lines. Z.S. Zdravković and P.I. Vukelja **C** p141

VERY LARGE SCALE INTEGRATION

Analogy between VLSI floorplanning problems and realisation of a resistive network. I. Cederbaum **G** p99
Bi-way sorter: a two-dimensional systolic array. G.A. Orton, L.E. Peppard and S.G. Akl **E** p147
Compatibility of switched capacitor filters with VLSI processes. J.C.M. Bermudez, M.C. Schneider and C.G. Montoro **G** p413
Crosstalk tolerant latch circuit. A. Rubio, J. Pons and R. Anglada **G** p5
DIRECS: system design of a 100 Mbit/s digital receiver. O. Joeressen, M. Oerder, R. Serra and H. Meyr **G** p222
Design of an analogue subthreshold multiplier suitable for implementing an artificial neural network. R.L. Walke, S.F. Quigley and P.W. Webb **G** p261
Designing a complementary design rule checker based on a binary balanced quad list quad tree. P.-Y. Hsiao and J.-T. Yan **E** p311
FFT architecture for WSI with concurrent error detection and fault location. F. Lombardi, Y.-N. Shen and J. Muzio **E** p13
Flexible systolic architecture for VLSI FIR filters. R. Wyrzykowski and S. Ovramenko **E** p170
Full systolic binary multiplier. J. Arechabala, E.I. Boemo, J. Meneses, F. Moreno and C. Lopez Barrio **G** p188
Layout optimisation for yield enhancement in on-chip-VLSI/WSI parallel processing. P. Mazumder **E** p21
Low-voltage BICMOS vertical OTA. J. Ramírez-Angulo **G** p553
Modelling and algorithms for spare allocation in reconfigurable VLSI. S.-Y. Kuo and W.K. Fuchs **E** p323
Neural network processor: A vehicle for teaching system design. P.Y.K. Cheung, A. Ferrari, P. de Wilde and G. Benyon-Tinker **G** p244
Novel analogue VLSI design for multilayer networks. J.N. Tombs, L. Tarassenko and A.F. Murray **F** p426
On the design of VLSI arrays for discrete Fourier transform. C.-M. Liu and C.-W. Jen **G** p541
SAM-I: a prototype machine for dynamic, array-oriented programming languages. R.F. Hobson, J.D. Hoskin, J.L. Simmons and R.W. Spilsbury **E** p335
Skew-free clock distribution for standard-cell VLSI designs. G.M. Blair **G** p265
Technique for 1-dimensional VLSI layout generation. U. Singh and C.Y.R. Chen **G** p635
VLSI design and CAE at Exeter University. R. Cobley **G** p183
VLSI design training and education in the University of Cantabria within EUROCHIP. S. Bracho, E. Villar, M. Martínez, P. Sánchez and M.A. Allende **G** p234
VLSI design: developments in teaching and research at the University of Essex. R.E. Massara, J. Standeven, M.J. Colley, A.D.P. Green, R.J. Mack, S. Monaghan, P.D. Noakes, G.J. Ritchie and V.K. Sagar **G** p171
VLSI implementation of mod-*p* multipliers using homomorphisms and hybrid cellular automata. B. Srisuchinwong, Ph. Tsalides, T.A. York, P.J. Hicks and A. Thanailakis **E** p486
VLSI module for high-performance multiply, square root and divide. S.E. McQuillan and J.V. McCanny **E** p505
Very-high-speed VLSI 2s-complement multiplier using signed binary digits. W. Balakrishnan and N. Burgess **E** p29

VOICE COMMUNICATION

Mixed Fourier/Walsh transform scheme for speech coding at 4.0 kbit/s. A.S. Spanias and P.C. Loizou **I** p473
Packet-based embedded encoding for transmission of low-bit-rate-encoded speech in packet networks. M.M. Lara-Barron and G.B. Lockhart **I** p482
Scheduling delay protocols integrating voice and data on a bus LAN. S. Bolis, E.G. Economou and G. Philokyprou **I** p407
Transmission of digitally encoded speech at 1.2 Kbaud for PCN. L. Hanzo, R. Salami, R. Steele and P.M. Fortune **I** p437
Using the coherence function for noise reduction. R. Le Bouquin and G. Faucon **I** p276
Voice activity detection using a periodicity measure. R. Tucker **I** p377

WAVEGUIDES AND WAVEGUIDE COMPONENTS

Analysis of *H*-plane waveguide discontinuities with an improved finite-difference time domain algorithm. E.A. Navarro, V. Such, B. Gimeno and J.L. Cruz **H** p183
Analysis of discontinuities in waveguiding structures by MAB method. J. Machâč **H** p351
Analysis of rib waveguide coupler filters. S.V. Burke, P.C. Kendall, S. Ritchie, M.J. Robertson and P.N. Robson **J** p59
Application of the method of lines to planar transmission lines in waveguides with composite cross-sectional geometries. M.A. Thorburn, A. Biswas and V.K. Tripathi **H** p542

Comparison of junctions in both dielectic guides and metallic guides above 75 GHz. R.J. Collier and M.F. D'Souza **A** p226
Completely buried planar waveguides fabricated in glass using a two-step purely thermal K^+ and Na^+ ion-exchange. Y. Zhou, P.J.R. Laybourn, J.V. Magill and R.M. De La Rue **J** p223
Coupling processes in circular open chirowaveguides. H. Cory and T. Tamir **H** p165
Effect of surface recombination on microwave performance of laser-induced DBR gratings in silicon coplanar waveguides. W. Platte **J** p399
Efficient analysis of finline structures by the boundary-element method. B. Song and J. Fu **H** p116
Electromagnetic field computations in a three-dimensional cavity with a waveguide junction of a frequency standard. L. Pichon and A. Razek **H** p343
Graphical depiction of the electromagnetic fields of Hermite–Gaussian modes. R.K. Arora and Z. Lu **H** p369
Guided modes in nonlinear periodic structures. P.M. Lambkin, I. Montrosset and K.A. Shore **J** p173
Improvement of finite difference methods for step-index optical waveguides. C. Vassallo **J** p137
Lateral mode discrimination in AlGaInP selectively buried ridge waveguide lasers. D.P. Bour and G.A. Evans **J** p71
New ferrite-filled waveguiding structures analysed by the averaging method. S.A. Tretyakov, M.I. Oksanen and A.S. Cherepanov **H** p227
On the refractive index of rutile. M.R. Shenoy and R.M. De La Rue **J** p163
Open resonators powered by a rectangular waveguide. O.M. Bucci and G. Di Massa **H** p323
Path-integral analysis of an arbitrarily tapered, multimode, graded-index waveguide; the inverse-square-law and parabolic tapers. C.C. Constantinou and R.C. Jones **J** p365
Phase-locking phenomena in coupled waveguide semiconductor lasers. Ziping Jiang and M. McCall **J** p88
Polarisation correction applied to scalar analysis of semiconductor rib waveguides. T.M. Benson, P.C. Kendall, M.A. Matin and M.S. Stern **J** p39
Radiation characteristics of a circular waveguide containing a chiral medium. T.C.K. Rao **H** p1
Reflection of the surface mode from an abruptly ended W-fibre. A.B. Manenkov **J** p101
Rigorous effective index method for semiconductor rib waveguides. T.M. Benson, R.J. Bozeat and P.C. Kendall **J** p67
Scattering analysis of a waveguide slot radiator enclosed in a parallel plate polariser. A.J. Sangster **H** p414
Simple scalar finite element approach to optical rib waveguides. M. Koshiba, H. Saitoh, M. Eguchi and K. Hirayama **J** p166
Slotted parallel-plate waveguide coupled to a conducting cylinder. P.D. Mannikko, C.C. Courtney and C.M. Butler **H** p193
Study of TE and TM modes in waveguides of arbitrary cross-section using an FD-TD formulation. E.A. Navarro and V. Such **H** p491
TE and TM coupling coefficients for index-gain multigrating waveguides. P. Debernardi and I. Montrosset **J** p127
Vector modes of D-shaped fibres. D. Marcuse, F. Ladouceur and J.D. Love **J** p117
Wavelength tuning characteristics of DFB lasers having twin-guide structures modulated by injection current or electric field. E. Yamamoto, M. Hamada, K. Suda, S. Nogiwa and T. Oki **J** p24